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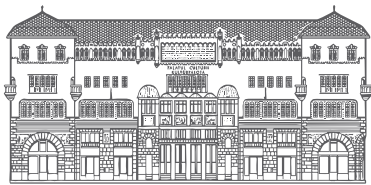
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A LATE BRONZE AGE SPEARHEAD FROM GORNEȘTI*

Botond REZI** – Sándor BERECKI***

The paper discusses a recently discovered spearhead from the vicinity of Gornești (Mureș County), which came to light in October 2022 during a survey with metal detector. Additional archaeological investigations were carried out, but no other items were recovered. Thus, the isolated discovery was analysed on typo-chronological grounds, and concluded that it can be dated roughly between the Ha A–Ha B1 periods. Its relation to a nearby Bronze Age settlement is presumable, but not provable.

Keywords: Late Bronze Age, spearhead, typo-chronology

Cuvinte-cheie: Epoca Bronzului Târziu, vârf de lance, tipologie, cronologie

INTRODUCTION

The last decade has seen an exponential growth in the number of archaeological and historical finds in Mures County. This is largely due to the increasing number of people who practice metal detecting in their spare time. One such artefact was discovered, left ‘in situ’ and then excavated by the archaeologists of the Mures County Museum on the outskirts of Gornești (HU: Gernyeszeg, DE: Kertzing), Mureș County, on the edge of the Izsó Forest (the Romanian Ijeu is the phonetic translation of the Hungarian toponym). The forest is situated east of Gornești, in the eastern part of the wide valley of the Mureș River, along its middle course, on the northern slope of a hill, at an altitude of 375–380 m, south of the road leading to Pădureni, above the Izsó/Ijeu stream. (Fig. 1).

The piece was discovered in October 2022 by N.-G. Carțis from Ernei, who, after prospecting with a metal detector in the Ijeu Forest, reported

to the Mures County Museum the discovery of a bronze spearhead. Carțis identified it by digging a small hole that reached the upper part of the object. Following the report of the discovery, archaeologists from the Mures County Museum¹ went to the site to examine the piece. In order to uncover the area where the bronze spearhead had been identified and to record the hole dug by Carțis, a 1 × 1 m section was traced (Fig. 2). The spearhead was found in the brown earth, with a dark greyish hue, typical of the forests in this area of the Mures valley. Although the tip of the piece was oriented to the north, we consider the object to be a stray find as no deposition pit or other anthropic intervention, artefacts or ecofacts could be identified to indicate deliberate deposition.

* This paper was carried out in the framework of the János Bolyai Research Scholarship (2023–2026) of the Hungarian Academy of Sciences granted to Botond Rezi.

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¹ The research was carried out by Dr. Sándor Berecki, scientific coordinator, and Lehel Bara Balázs.

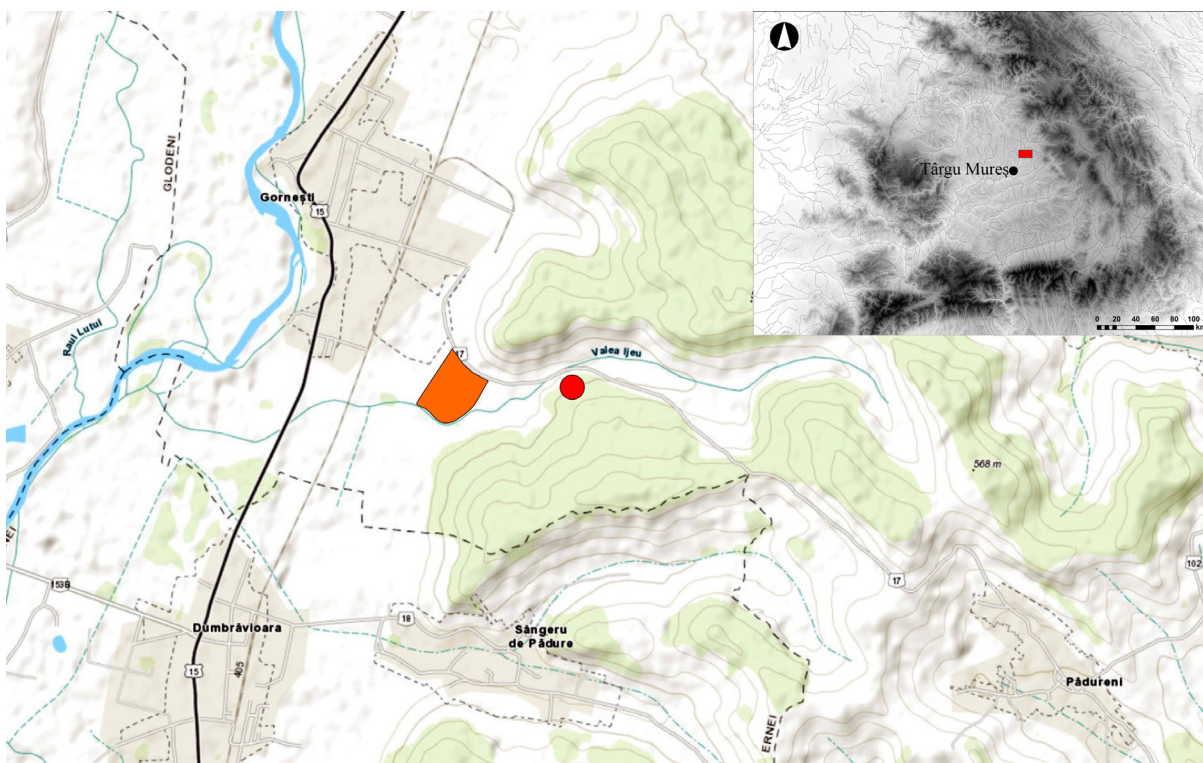


Fig. 1. The location of the spearhead (red) and the archaeological site *Cserépcsűr* / *Șura Hârburilor* (orange).



Fig. 2. Archaeological excavation of the Late Bronze Age spearhead.

DESCRIPTION AND TECHNOLOGICAL OBSERVATIONS

The flat blade of the spearhead widens gradually towards the lower third and has a pro-

was grinded (Fig. 4/1–2). Unfortunately, due to advanced corrosion during burial, the cutting edges of the blade are poorly preserved, thus no hammering or sharpening traces can be observed (Fig. 4/3–5). As a result, no use-wear

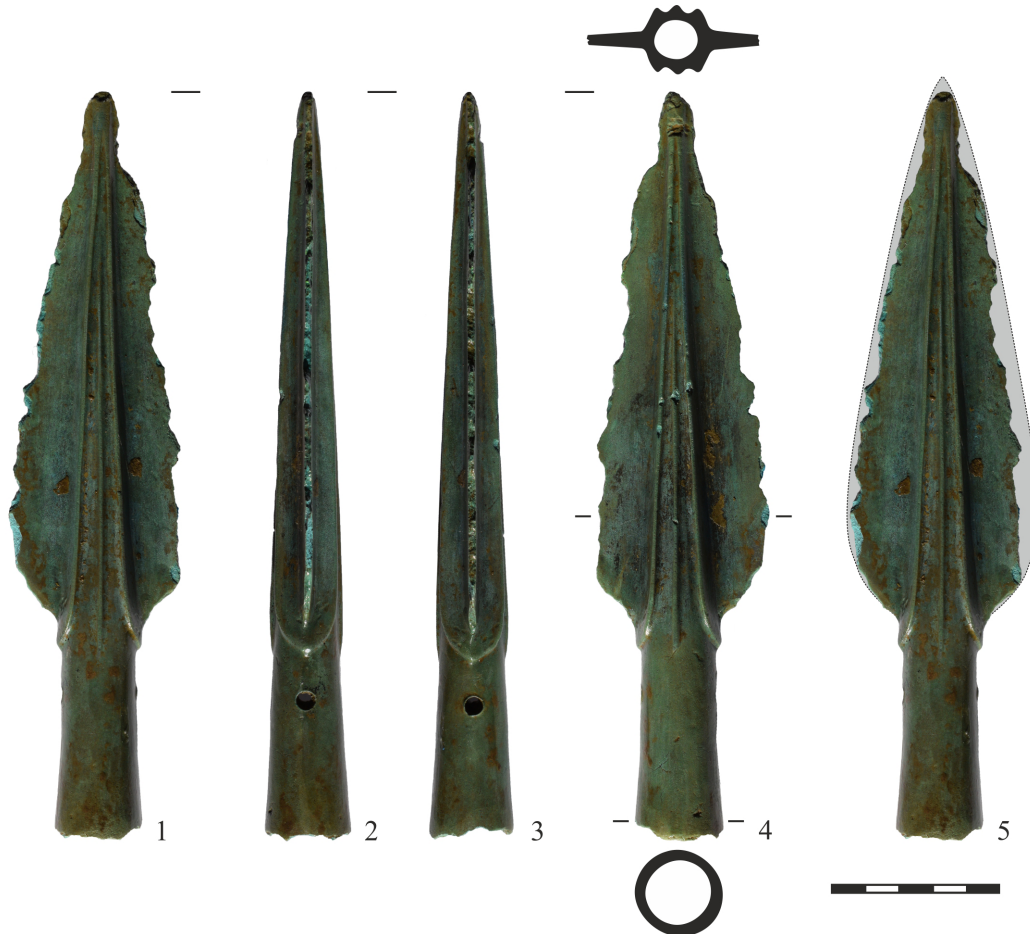


Fig. 3. The recently discovered spearhead from Gornești.

nounced middle strengthening rib with two parallel ribbings and a third thinner rib in-between, which fades away below the base of the blade. On both sides of the object the two marginal ribs unify under the base of the blade. It has a slightly long tubular socket, with two casted peg holes in line with the plane of the blade. The spearhead has a greyish-green patina on its entire surface (Fig. 3). Dimensions: total length: 22.2 cm; length of the blade: 16.2 cm; length of the socket: 6 cm; width of the blade: 5.1 cm; width of socket: 2.6 cm; weight: 209.5 g.

From technological point of view, the spear is a well-cast, finished product, without any visible casting defects. The casting seams have been removed, and the surface of the object

marks are identifiable on the blades. A large part of the blade is missing, having an asymmetrical outline (Fig. 3/5). Similar corrosion is visible on the tip as well. Moreover, the same degradation can be observed on the rim of the socket. Three parallel and a fourth blow mark are visible on the ribs, which are modern interventions (Fig. 4/6–7). Still, a few small dent marks visible on the ribbings are covered by patina, suggesting prehistoric treatment (Fig. 4/8–9). Fine cracks are visible on the lower third of the socket, which probably occurred during the lifetime of the object (Fig. 4/10–11). All in all, with some caution we can conclude, that the spearhead from Gornești was a well-casted and post treated, intact and lightly used object, with a

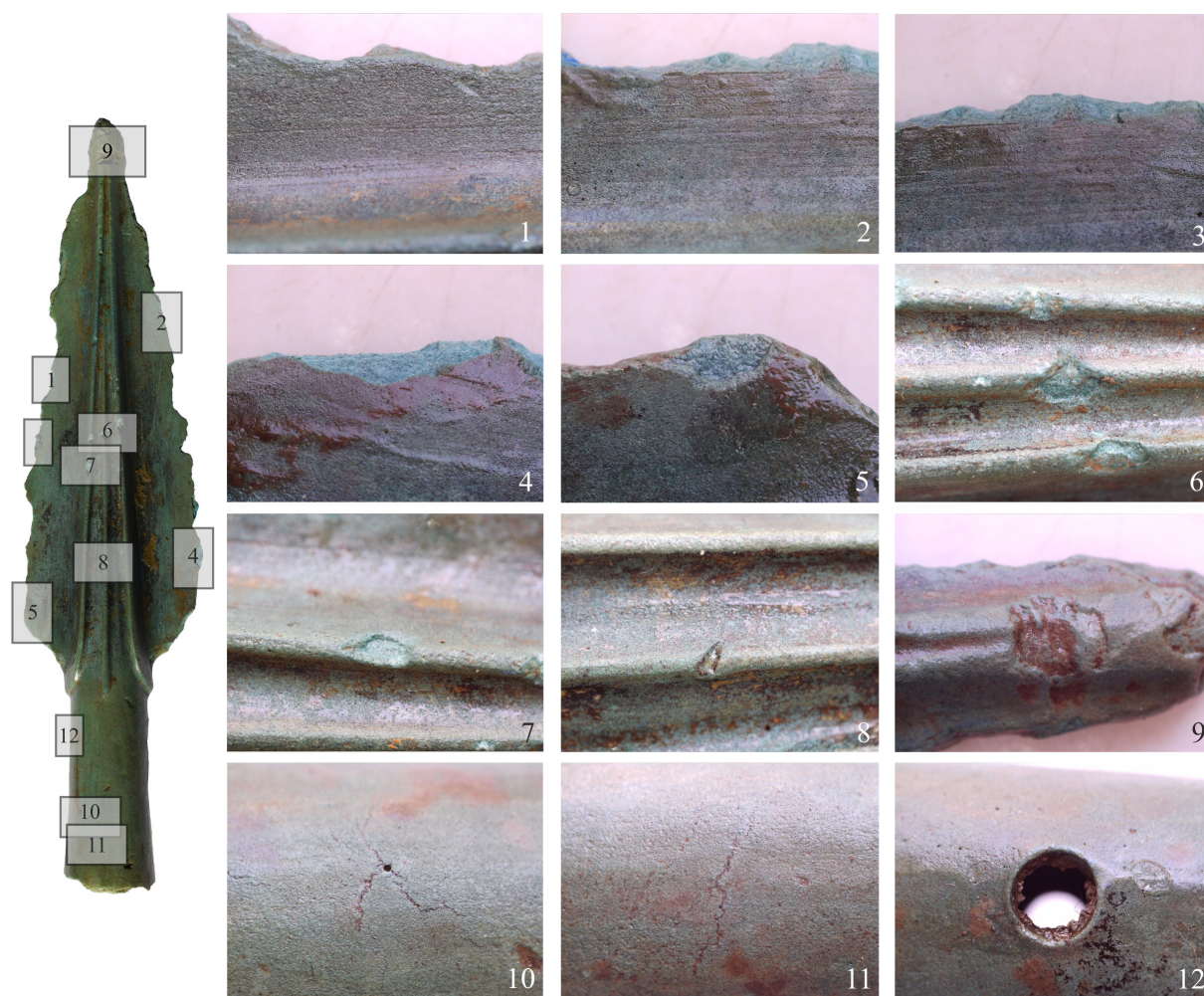


Fig. 4. Macroscopic observation on the artefact: 1–2. grinding marks on the blade; 3–5. damaged cutting edge; 6–7. modern blow marks on the ribs; 8–9. prehistoric use-marks on the ribs; 10–11. prehistoric crack on the socket; 12. Casted peg hole.

short biography, and went under the ground in a relatively short time.

In general, the longitudinal ribs on the socket are considered to have a strengthening purpose, which in some cases continues even under the blade.² This facilitated the weaponry function of the artefact, as stabs with the multiple angular ribs could have caused deeper and larger wounds. In addition, a function of the ribs as an aesthetic element can also be taken into consideration, mainly at specimens with accentuated and excessive ribbings.³

² SOROCEANU 1997, 393.

³ VASIĆ 2015, 48. The spearhead from Serbia, due to its multiple ribs and large size is considered a ceremonial weapon. See VASIĆ 2015, Taf. 9/122.

TYPO-CHRONOLOGICAL CONSIDERATIONS

Since it is an isolated discovery, without any chronological reference from adjacent metal items or archaeological material, the dating of the spearhead from Gornești can be made exclusively on relative comparison based on analogue finds. The general form of the discovered spearhead was a widely distributed metal weapon during the Late Bronze Age of the East Central European Region, mainly in the north-eastern parts of the Carpathian Basin, namely the Upper Tisza Region with south-eastern Slovakia and Transcarpathia, respectively Transylvania. Outside this area it is present in smaller numbers in Slovakia, western Hungary, Croatia and Serbia, with isolated discoveries reaching as far as

Poland, Denmark, Germany, Switzerland, Czech Republic, Italy, Albania, northern Greece, Bosnia-Herzegovina, Bulgaria, Banat Region, southern Romania and Moldavia.⁴ Due to their large number the typological division and chronological classification were repeatedly discussed.⁵ Common to the above quoted works is that the general shape of this type is assumed to have Middle Bronze Age antecedent,⁶ with one of the earliest exemplar being discovered at Nagyhan-gos-Kölesd and dated to the Koszider horizon.⁷ The first spearheads with ribbed socket appear during the evolved stages of the Late Bronze Age, with the dissemination of the Uriu-Ópályi type hoards (Reinecke Br D). They are present in a prominently high number in the upcoming period, namely the Cincu-Suseni-Kurd horizon (Ha A), often in a fragmented and manipulated state. The late spearheads with ribbed socket were hoarded during the Ha B1 and B2/3 stages.⁸

As a result of a fine typological trait, which is the presence of a third thinner rib between the two parallel ribbings along the blade, the spearhead from Gornești can be assigned to *Group C, variant e* in T. Bader's typological scheme.⁹ Based on a significant number of analogies this variant of the spearheads can be dated slightly later, dominating mainly the Ha A period, with frequent appearances in Ha B1.¹⁰ The latest occurrences have been recovered from the

hoard of Olešnik I, dated to Ha B2,¹¹ and Ghirișu Român, dated to Ha B3.¹² Thus, the presented spearhead had a long time span, appearing first in the Br D period, culminating in the Ha A, with isolated specimens being hoarded even in HaB2/3 period as well. As spearheads in general change little over time and suffer insignificant mutations during their typological evolution, an exact dating of an isolated discovery is not possible. Thus, we must be content with the above mentioned general timeframe for the recently discovered spearhead from Gornești, and take into consideration that it could have been buried over an extended period of time.

CONTEXT AND CONCLUDING REMARKS

Two noticeable discoveries are mentioned from Gornești. The first are two fragmented Suci de Sus vessels that were pieced together (Fig. 5/1–2), which initially were believed to be discovered in Gornești.¹³ It was shown that they have belonged to the former collection of Count Domokos Teleki of Gornești, and were not discovered at the edge of the settlement, but most probably at Suci de Sus–*Poduri pe coastă*.¹⁴ The second discovery is a presumable bronze hoard from the same locality, but no data were recorded regarding its find circumstances, except that the bronze items were in the collection of the same Domokos Teleki (Fig. 5/3–7). As no mentions can be found in earlier literature regarding a hoard from Gornești, the location is probably based only on the collector's place of residence, thus the assemblage can be removed from the list of the Late Bronze Age hoards.¹⁵ Their exact

⁴ HANSEN 1994, Abb. 37; SOROCEANU 1997, Abb. 4 and Liste 4a; PABST 2013, Abb. 2; LESHTAKOV 2015, map 5; TARBAY 2015, fig. 4, List 2; TARBAY 2022b, fig. 2.1.

⁵ GARAȘANIN 1956, 15–17; JACOB-FRIESEN 1967, 200, 246; NOVOTNÁ 1970, 34; RUSU 1972, 227–228; MOZSOLICS 1973, 34; FURMÁNEK 1977, 270–271; BADER 1978, 96; ČERNIH 1978, 228–233, Tab. IV.12; VELIAČIK 1983, 44; MOZSOLICS 1985, 20–21; LOCHNER 1991, 210–211; HANSEN 1994, 67–70; ŘÍHOVSKÝ 1996, 64–67; SOROCEANU 1996, 251; KOBAL' 2000, 34–35; BADER 2006, 247–253; GEDL 2009, 71; BADER 2015, 384–387; LESHTAKOV 2015, 52–53, 232–233, Taf. 190; VASIĆ 2015, 45–50.

⁶ KEMENCZEI 1965, 128; MOZSOLICS 1967, 61; SOROCEANU 1996, 251; VASIĆ 2015, 48–49; TARBAY 2022b, 34–35.

⁷ MOZSOLICS 1967, Taf. 31/3.

⁸ MOZSOLICS 1985, 20–21; ŘÍHOVSKÝ 1996, 65–67, Abb. 5; SOROCEANU 1997, 394; PABST 2013, 162; TARBAY 2015, 313–314, fig. 15–16.

⁹ BADER 2015, 386, Tabelle. It is the latest and most complete typological analysis for the Romanian Bronze Age spearheads.

¹⁰ BADER 2015, 386; TARBAY 2022a, 76–77.

¹¹ KOBAL' 2000, Taf. 87/C3.

¹² RUSU ET AL. 1977, pl. R 69a; PETRESCU-DÎMBOVIȚA 1978, 151/272, Taf. 266/A18; KACSÓ 2007a, 69; BADER 2015, 386.

¹³ Archaeológiai Értesítő XX, 1900, 208 and 213.

¹⁴ In this regard, see KACSÓ 1987, footnote 55; KACSÓ 2008, 12–14.

¹⁵ PETRESCU-DÎMBOVIȚA 1977, 156, Taf. 373/4; PETRESCU-DÎMBOVIȚA 1978, 157, No. 341, Taf. 273D/1; ARDEU 1995–1996, 203, No. 90; LAZĂR 1995, 137, No. XXXIX.1f; LAZĂR 1999, 50; DIETRICH 2021, 550–551, no. 1964.



Fig. 5. Notable discoveries from the collection of Domokos Teleki from Gornești: 1–2. Suciul de Sus vessels; 3–7. 'hoard' from Gornești.

place of provenance remains unknown and no chronological or typological parallel is relevant with the recently discovered spearhead.

The archaeological literature mentions instead a Late Bronze Age settlement in the immediate vicinity of the spearhead. The site of *Cserépcsűr* is noticed for the first time in the archaeological repertory of M. Roska. Fragments of Bronze Age, Early Iron Age and La Tène pottery from this site were reported by Roska, which were at that time in the collection of Domokos Teleki of Gornești.¹⁶ N. Vlassa illustrated some Bronze Age pottery fragments

as coming from this site,¹⁷ but apart from their identification in the field, he did not offer any illustration or description of their exact location. Among the illustrated fragments, some are specific to the Suciul de Sus culture,¹⁸ which is why C. Kacsó concluded that the settlement at *Cserépcsűr* (Șura Hârburilor) had most probably belonged to the bearers of the Wietenberg culture, and that the Suciul de Sus fragments found here, like others found in central and south-eastern Transylvania, were imported into the

¹⁶ ROSKA 1942, 97.

¹⁷ VLASSA 1965, 20, fig. 2. See also POPESCU ET AL. 1951, 283; LAZĂR 1992, 39, no. 13.

¹⁸ BADER 1972, 513, no. 16, fig. 2; BADER 1979, 27, no. 24.

Wietenberg environment.¹⁹ The surface research and archaeological excavations carried out by M. Petică and A. Zrínyi in 1996 established the stratigraphy and chronology of the large settlement, which, on the basis of the ceramic fragments and the excavated complexes, is dated to the Late Bronze Age and Early Iron Age (late Wietenberg and Gáva style pottery).²⁰

Given the very short distance between the site of the spearhead discovery and the contemporary archaeological site of *Cserépcsűr* (Fig. 1),²¹ it is very likely that the isolated piece belongs to the wider archaeological context of this site. Although a direct and

certain connection between the two sites cannot be established, and the isolated nature of the recently discovered spearhead does not help the archaeological interpretation, we can assume a certain contemporaneity with the Gáva pottery from the settlement. The Wietenberg and Suci de Sus finds at the *Cserépcsűr* site are earlier and cannot be linked to the above-mentioned piece. There is, of course the possibility that the spear from Gornești was left or deposited by representatives of another community. A definite answer can only be given after thorough field research, which should focus on the wider archaeological context of the spearhead.

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¹⁹ KACSÓ 2007b 54–55; KACSÓ 2008, 13–14. See also POPA 1975, 14; KACSÓ 1987, 72; BOROFFKA 1994, 46–47, no. 215.

²⁰ PETICĂ–ZRÍNYI 2000, 333–334, 363–374.

²¹ cod RAN: 117186.03. The toponym is translated in the archaeological literature by VLASSA (1965, 20) as „Șura Hârburilor”, a form that does not exist in the cadastral documents and is unknown to the locals.

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FRAGMENTED HOARD FROM THE RECYCLE BIN: SZENTES-NAGYHEGY I

János Gábor TARBAY*

The paper revisits an old hoard from Szentes-Nagyhegy (Csongrád-Csanád County, Hungary). As one of the 'workshop hoards' dated to the Ha B1 period, this assemblage provides a case study to elaborate on different casting defect types and the technological classification of hoarded objects associated with metallurgy. Our results suggest that the hoard consists of different types of unusable or unfinished ingots and as-casts, as well as various finished products without observable use-wear traces, and with micro-wear traces or repair marks that suggest heavy wear. Almost all the finds were deposited in an intentionally fragmented state.

Keywords: Late Bronze Age (Ha B1), metallurgy, casting defects, hoards

Cuvinte-cheie: Bronz Târziu (Ha B1), metalurgie, defecte de turnare, depozite de bronzuri

INTRODUCTION

Szentes-Nagyhegy I (Csongrád-Csanád County, Hungary) is a long-known hoard that has been published several times since the end of the 19th century. From time to time, it is worth revisiting such assemblages even after a hundred years, as the artefacts they contain can still provide us with new information about the past lives of Late Bronze Age peoples. Our paper was inspired by the need to understand the technological characteristics of the deposited objects and, through them, the principles of hoard composition. These are questions that both József Hampel and Amália Mozsolics were concerned about, but neither of them has discussed them fully in connection with the Szentes-Nagyhegy Hoard I, leaving us plenty of aspects to elaborate on.¹

The Szentes-Nagyhegy Hoard I appeared first in József Hampel's paper in *Archaeologiai*

Értesítő, where he introduced the new purchases of the Hungarian National Museum (HNM) between April and September 1892.² This work described the finds that arrived at the museum and contained drawings of the objects. The hoard was donated to the HNM in 1892 by Sándor Farkas, an amateur archaeologist and pharmacist in Szentes,³ in three rounds. The first purchase contained solely Late Bronze Age artefacts and was inventoried (Inv. Nos. 1892.31.1–38) as a hoard (IA, Fig. 1–2, Fig. 3/23, 25–32). The other two purchases (Inv. Nos. 1892.43.1–9 and 1892.84.183–186) were brought to the HNM along with objects dated to different periods (IB, Fig. 3/33–40 and IC Fig. 4/41–44). Notes in the 1892 inventory book indicate that these finds belong to the same assemblage. Not much is known from József Hampel's works and the museum's inventory

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¹ HAMPEL 1896, 185; MOZSOLICS 1985b, 26.

² HAMPEL 1892, 372–374, pl. 1.

³ <https://www.arcanum.com/hu/online-kiadvanyok/Lexikonok-magyar-eletrajzi-lexikon-7428D/f-7547C/farkas-sandor-nemedi-75531/> (last accessed: 26.04.2024, 8:00).

book entries about the hoard's circumstances of discovery, and findspot, except for the name of the site: Szentes-Nagyhegy.⁴

This area is a low hill situated on the north-western edge of Szentes City. The Nagyhegy is a multi-period and multi-hoard site, the Late Bronze Age occupation of which is summarized by Gábor V. Szabó in detail. The earliest phase was marked by a Tumulus culture settlement and cemetery dated to Reinecke Br B2/C. Ceramics and metal finds from the site suggest that the occupation continued during the Br D–Ha A1 period.⁵ 'Hoard II', and the surrounding hearth and house remains from the vineyard of Mrs. Váci Imre, are dated around the end of this period.⁶ The final stage of the Nagyhegy, Ha B1, is represented only by Hoards I and III. The latter was discovered in the vineyard of Mrs. Sándor Komlósi in 1938 during deep tillage. The composition of Hoard III differs from Hoard I as it consists of metal vessels, sickles, axes, numerous bracelets, and a few ingots.⁷

Following József Hampel's works, the Szentes-Nagyhegy Hoard I appeared in several publications, which were usually concerned with the typo-chronological evaluation of the find.⁸ Already József Hampel placed the assemblage to the end of the Bronze Age.⁹ In 1955, István Foltiny assessed two axes from this hoard, one undecorated (Fig. 1/5) and one with pseudo-wings (Fig. 1/4), and he dated the latter to the Ha B.¹⁰ In 1968, Wilhelm Albert von Brunn dated this hoard to the Jászkarajenő-Uzsavölgy Phase (Ha A2) based on the pseudo-winged

socketed axe, and socketed axes which we classify today as Debrecen and Palotabozsok types (Fig. 1/4–7; 2/13; 3/33).¹¹ One of Amália Mozsolics's works that she wrote perhaps before 1984, took on the original idea of József Hampel and interpreted the assemblage as a 'foundry hoard' (öntőműhely). At that time, she had been hesitant to decide whether this hoard belonged to her Gyermely horizon (Ha A2) or the Hajdúböszörmény horizon (Ha B1),¹² but later she dated the hoard without doubt to the latter.¹³ In 1984, Tibor Kemenczei dated the hoard to "the second phase of the Gáva metal industry", which is roughly similar to Mozsolics's concept; he also briefly discussed the typo-chronological characteristics of several socketed axes and the spearhead (Fig. 1/1–2, 4–9; 2/11).¹⁴ More than a decade later, he listed the Szentes-Nagyhegy Hoard I as an example for Hoard Horizon IVa (Ha B1) based on axes [of Debrecen and Palotabozsok types] (Fig. 1/2, 5, 7–8, 10; 3/33) and a 'late Fuchsstadt- and Jenišovice type' bronze cup, identified a few years back as Spišská Belá type by Pál Patay (Fig. 2/14).¹⁵ Like Tibor Kemenczei, Christopher Pare also dated the Szentes-Nagyhegy Hoard I to a phase ('Depotfundstufe IV') equivalent to Ha B1.¹⁶ By the end of the 20th century, all objects of the Szentes-Nagyhegy Hoard I were presented to the academic community, who agreed on their relative chronology without much debate. Thus the hoard was assigned to phases equivalent to Hermann Müller-Karpe's Ha B1.

⁴ Inventory Book of the HNM 1892.31, 43, 84; HAMPEL 1892, 372–374, pl. 1. József Hampel re-published the hoard in 1896. HAMPEL 1896, 185, pl. 193.

⁵ V. SZABÓ 1996, 13, 21–22; V. SZABÓ 2002, 18–19.

⁶ CSALLÁNY 1939, 58; KEMENCZEI 1984, 183–184; MOZSOLICS 1985a, 193; V. SZABÓ 1996, 22, footnote 33.

⁷ see CSALLÁNY 1939; MOZSOLICS 1985a, 193; V. SZABÓ 1996, 22; MOZSOLICS 2000, 77–78; V. SZABÓ 2002, 18–19.

⁸ Notable publications: CSALLÁNY 1939, 58; FOLTINY 1955, 86, 90, fig. 57/11; 59/1; PATAY 1968, 75, fig. 22/23; VON BRUNN 1968, 47, 55, 292, Tab. 1; KEMENCZEI 1984, 184, pl. 206/1–22; 207C/1–7; MOZSOLICS 1985b, 26–28, No. 84, pl. 14/1–5; 16/2; PATAY 1990, 55, pl. 39/83; KEMENCZEI 1996, 61, 84, figs. 31–33; PARE 1998, 360, No. 40; MOZSOLICS 2000, 76–77, pl. 92; CZAJLIK 2012, 70.

⁹ HAMPEL 1896, 186.

¹⁰ FOLTINY 1955, 86, 90, 125, fig. 57/11; 59/1.

¹¹ Wilhelm Albert von Brunn discussed the finds from Hoard I and Hoard III together in his statistics. See VON BRUNN 1968, 47, 55, 292–293, Tab. 1, fig. 4/30, 32–37.

¹² Mozsolics discussed the contents of the Szentes-Nagyhegy Hoard I and another hoard, what was later called Szentes area IV (donated also by Sándor Farkas) together, stressing their uncertain attribution. KEMENCZEI 1984, 183–184, pl. 204–205; MOZSOLICS 1985b, 26–28, 68, No. 84, pl. 14/1–5; 16/2; MOZSOLICS 2000, 78–79, pl. 96–97.

¹³ MOZSOLICS 1985a, 193; MOZSOLICS 2000, 76–77, pl. 92.

¹⁴ KEMENCZEI 1984, 77–78, 81–83, 184, pl. 206; 207C.

¹⁵ PATAY 1990, 55–56, pl. 39/83; KEMENCZEI 1996, 61, 80, 84, 87, fig. 31–33.

¹⁶ PARE 1998, 360, no. 40.



Fig. 1. Szentes-Nagyhegy, Hoard IA.



Fig. 2. Szentes-Nagyhegy, Hoard IA.



Fig. 3. 25–32. Szentes-Nagyhegy, Hoard IA; 33–40. Hoard IB.



Fig. 4. Szentcs-Nagyhegy, Hoard IC.

TYPOLGICAL COMPOSITION

The hoard what we call today Szentcs-Nagyhegy Hoard I after Mozsolics and Kemenczei's above-mentioned works contains the following objects: one spearhead with a pronounced midrib (Fig. 1/1), hilt fragment of a flange-hilted sword (Fig. 2/17), Debrecen-type socketed axes (Fig. 1/2–3; 2/13; 3/33; the axe blades on Fig. 2/12 and 3/34 are uncertain), two pseudo-winged socketed axes (Fig. 1/4; 4/42), Palotabozsok-type socketed axes (Fig. 1/5–10; 2/11; 4/41), one perforated sheet (Fig. 2/15), a Máriakéménd-type annular ring (Fig. 3/35), a Spišská Belá-type bronze cup (Fig. 2/14), a sheet metal fragment (Fig. 2/16), a bar ingot (Fig. 2/18–19, Fig. 3/36), a triangle-shaped ingot (Fig. 2/20), plano-convex ingots (Fig. 2/21–22, 24; 3/25–31; 4/43), two unclassifiable cast metal objects (Fig. 3/32; 4/44). Of the forty-four objects, forty-three have been preserved, weighing 11,432.2 g.

The spearhead (Fig. 1/1) belongs to Tibor Bader's Variant B of Group C, which has numerous analogues from the Carpathian Basin to west-Central Europe. Based on two casting moulds from Oşorhei (Br D–Ha A1) and Polgár M3/1 (Ha A2–Ha B1), they were probably produced locally in the Carpathian Basin. Such cast spearheads with pronounced midribs circulated for a long time, during the Late Bronze Age, they occurred mostly between Ha A1 and

Ha B1.¹⁷ Of the Debrecen-type axes,¹⁸ only one can be evaluated properly owing to its complete rib motif (Fig. 1/2). This decoration appears on stray-find axes from Austria and Slovakia and hoarded objects from Hungary, Romania and Slovakia dated to the Ha B1.¹⁹ The two sides of the pseudo-winged socketed axe (Fig. 1/4) look different due to technological reasons. One shows a horizontal rib above the wings (Side A) (Fig. 1/4A), and the other lacks this feature (Side B) (Fig. 1/4B). The analogues of the ribbed side are distributed in Hungary, Austria, Bosnia and Herzegovina, the Czech Republic, Slovakia, Romania, Moldova and Poland. The earliest ones can be dated to Ha A1, while most of them were deposited during the Ha B phase, essentially Ha B1 and Ha B2.²⁰ The ribless Side B

¹⁷ See with further references in BADER 2015, 376, tab. 1/16; TARBAJ 2019, pl. 14/28, e–f; TARBAJ 2022a, 33–34, fig. 2/1; TARBAJ 2023b, 76–77, fig. 1/3.

¹⁸ DERGAČEV 2002, 174–176.

¹⁹ 'Austria', Boldeşti-Scăeni (Ha B1), Bratislava (incomplete hoard, ca. Ha B1), Kemendollár (Ha B1), Nyírpazony-Újszölő (Ha B1), Slovakia. See with further references in: TARBAJ 2023a, 129–130, fig. 2/2; 13; 14/2.

²⁰ TARBAJ ET AL. 2023, 93, fig. 8/10. Further analogues are: Belica (Phase II), Ciceu-Corabia (Ha B1/Ha B2), Gemer area (stray find), Guşteriţa II (Ha A1), Hinceşti (stray find), Máriapócs-Páskum (Br D–Ha A1), Martonyi I (Ha B), Pécs area (stray find), Pyhrn (stray find), Şpálnaca II (Ha A1). NOVOTNÁ 1970, pl. 38/672; MAYER 1977, pl. 82/1134; PETRESCU-DÎMBOVIŢA 1977, pl. 148/16; 193/22; MARINESCU 1979, pl. 1/6; VIDOVIĆ

has counterparts in Hungary, Czechia and Slovenia and is dated to the Ha B1 phase in East Hungary.²¹ Most of the deposited socketed axes are loopless and have a thin, chisel-like body, thick collar, and an oval cross-section (Fig. 1/5; 2/11; 4/41). These tools, called Palotabozsok type,²² are local Carpathian axes with parallels from Hungary, northern Croatia, Serbia and Romania. They were present for a long time in the Late Bronze Age material from (Br D)/Ha A1 to Ha B1 but became frequent towards the Ha B1 period.²³ The small ring fragment with lozenge cross-section (Fig. 3/35) was part of a Máriakéménd-type annular ring. Such jewellery is distributed in a large territory between east- and west-Central Europe. Máriakéménd-type rings are usually found in hoards and can be dated between the Ha A1 and Ha B1(Ha B2) periods.²⁴ Previous research sorted items similar to the bronze cup fragment (Fig. 2/14) into different classes,²⁵ here we follow the classification proposed by Pál Patay. He determined the object as a Spišská Belá-type cup and dated it to Ha B1. This is a rare type that sporadically appears in the Carpathian Basin (e.g., Spišská Belá, Hajdúsámson).²⁶ Apart from finished products, the hoard contains different types

of ingots²⁷ cast in regular bars (Fig. 2/18–19; 3/36),²⁸ triangle (Fig. 2/20)²⁹ and plano-convex (Fig. 2/21–22, 24; 3/23, 25–31, 37–40; 4/43) shapes.³⁰

Analogues to the Szentes-Nagyhegy Hoard I are mostly from the Carpathian Basin but the find shows connections with the northern Balkans, Austria and Moravia as well. Its typological composition corresponds to the tendencies observed in East Hungary, as it shows connections with local hoards there such as Nagyrábé I or Hévízgyörk, and also with Southern Transdanubian assemblages.³¹ The hoard contains objects that are characteristic of multiple periods, mainly between Ha A1 and Ha B1 (e.g., spearhead of Variant B of Group C, pseudo-winged socketed axe, Palotabozsok- and Máriakéménd-type rings). The Ha B1 dating proposed by research can be further strengthened with the fine parallels of the Debrecen-type socketed axe No. 2, the analogues of the rib pattern on the A- and B-sides of the pseudo-winged axe, and the dating of the bronze cup.

A DIFFERENT CLASSIFICATION

The true value of a hoard like Szentes-Nagyhegy I lies in the technological character of the deposited objects. József Hampel already identified the Szentes-Nagyhegy Hoard I as a group of objects originating from a foundry (Hungarian 'öntőműhely'). His arguments rested on the content (plano-convex ingots, defective products and incomplete casts) and condition (broken

1989, pl. 4/11; KOBÁLY 1999, fig. 2/4; ALMÁSSY ET AL. 2001, pl. 1.6; CERNA–TOPAL 2013, fig. 2/1; V. SZABÓ 2019, fig. 115. The Szentes-Nagyhegy axe has a body similar to the Palotabozsok type, although most socketed axes with these rib patterns are rather squat. Finds with similar form characteristics can be mentioned from the Gemer area, Hradec, Hincești, Máriapócs-Páskum, Pyhrn. NOVOTNÁ 1970, pl. 38/672, 676; MAYER 1977, pl. 82/1134; ALMÁSSY ET AL. 2001, pl. 1.6; CERNA–TOPAL 2013, fig. 2/1.

²¹ Belica (Phase II), Doubravice Hill I (Ha B2 – Ha B3), Jevíčko (Ha A1), Lázy, Újszentmargita (Ha B1), 'Moravia/Slovakia', Tiszavasvári (Ha B1), Rátka (stray find), Szentgál (stray find), Trate, Vladislav, Vrhniko-okolica. KEMENCZEI 1969, pl. 20.7; VIDOVIĆ 1989, pl. 4/4; ŘÍHOVSKÝ 1992, pl. 66/943; 65/933–935; TERŽAN 1995 (ed.), pl. 16/90–91; MOZSOLICS 2000, pl. 111/6; 112/3; ILON 2011, fig. 3.6; VÍCH 2017, fig. 8.2.

²² DERGAČEV 2002, 176.

²³ See with further references in TARBAY 2022a, 36–37, fig. 2/2.

²⁴ See with further references in TARBAY 2022a, 44.

²⁵ NESTOR 1935, 51, no. 6; LINDGREN 1938, 69, footnote 42; CHILDE 1948, 195; PATAY 1990, 55.

²⁶ PATAY 1990, 55–56, pl. 79B; NOVOTNÁ 1991, 23.

²⁷ No. 44 is difficult to classify. The breakage of the object seems modern. Its entire surface is heavily ground by a modern polishing tool. Its form indicate a cuboid ingot.

²⁸ MOZSOLICS 1985b, 23–33; CZAJLIK 2012, 74; TARBAY 2022a, 50.

²⁹ See with further references in TARBAY 2016, 99.

³⁰ A classification of the ingots in the Szentes-Nagyhegy Hoard I were provided by Zoltán Czajlik who sorted a few examples to the Górt type (probably nos. 22–23). According to Czajlik's results, the Górt type has a diameter of 4–5 cm, a total weight of 20–30 g, and it is usually alloyed with tin. Known examples distribute from the Carpathian Basin to France. MOZSOLICS 2000, pl. 92/18–19; CZAJLIK 2006, 58; CZAJLIK 2012, 70.

³¹ MOZSOLICS 2000, pl. 62–65; TARBAY 2021; TARBAY 2022b, fig. 5.

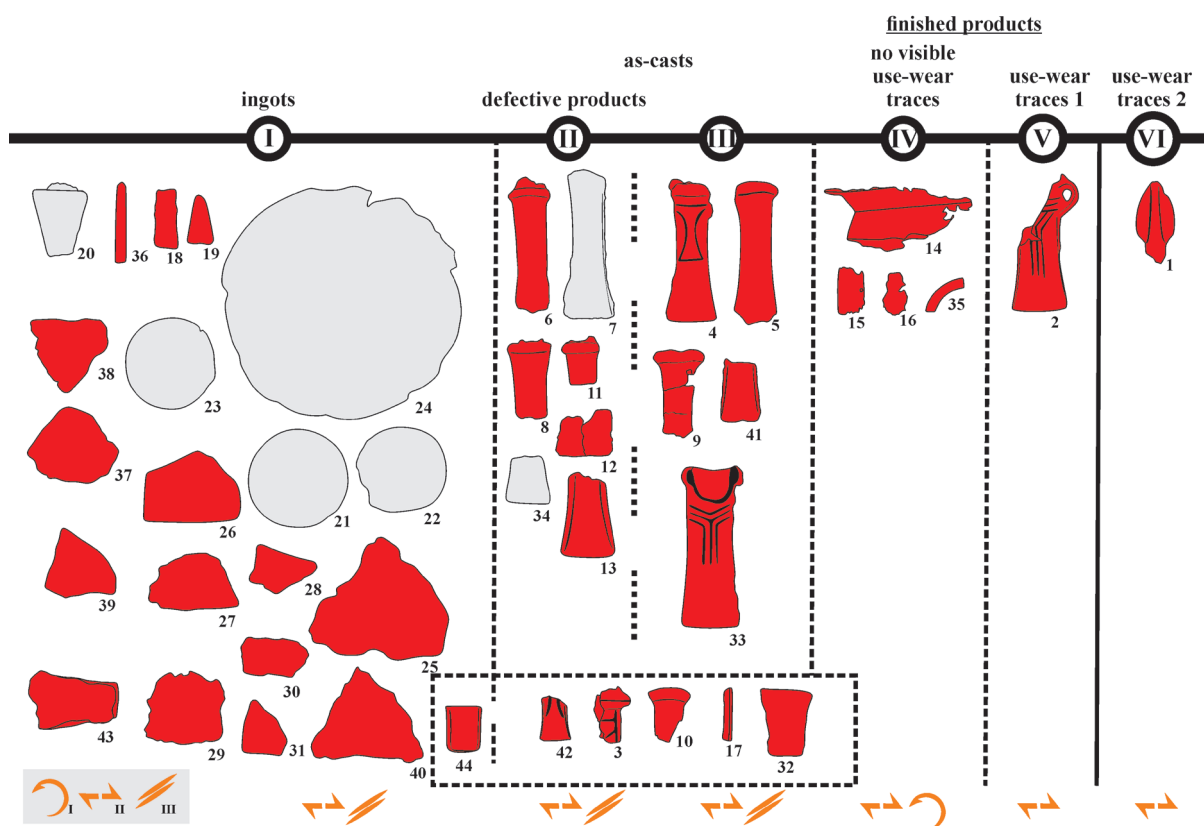


Fig. 5. Selection of Szentes-Nagyhegy Hoard IA–C. I. bending, II. breaking, III. tool impacts; red: broken, grey: complete.

objects, split ingots) of the assemblage.³² Amália Mozsolics also recognised this pattern and proposed that the Szentes-Nagyhegy Hoard I contains defective products for remelting, a ‘casting jet’ [triangle-shaped ingot], and round plano-convex ingots.³³ These observations on the nature of this hoard are indeed correct, but there is much to reveal about its composition. During our revision of the Szentes-Nagyhegy Hoard I, the objects were sorted into different technological groups based on production technological and use-wear phenomena on their surfaces: Group I (ingots) – Nos 18–31, 36–40, 43; Group II (as-casts, defective products) – Nos 6–8, 11–13, 34; Group III (as-casts) – Nos 4–5, 9, 33, 41; Group IV (finished products without observed use-wear traces) – Nos 14–16, 35; Group V (finished products with level 1

use-wear traces) – No. 2, Group VI (finished, heavily used products with level 2 use-wear traces) – No. 1 (Fig. 5).³⁴

This hoard primarily contains *ingots* (Group I), which dominate the assemblage in quantity and total weight, measuring almost 8.5 kg (8456.4 g). Macroscopic observation was insufficient to decide that these are pure copper or copper alloy ingots, produced during casting from the residue metal in the crucibles. A future elemental composition analysis can provide conclusive evidence on this matter. However, the greyish, silverish surfaces of most ingots and the porous breakage surfaces of some (Fig. 2/24; 3/25) support the latter scenario based on the study of the Budakeszi hoard, which contains ingots with similar colour and surface characteristics.³⁵ In this hoard, we observed a phenomenon which most probably is lead segregation.³⁶

³² HAMPEL 1896, 186.

³³ MOZSOLICS 1985b, 26, 28, 38. Gábor V. Szabó also entertained the idea that in the area of Szentes, assemblages like Hoard I may be a sign for a local metal distribution centre or place of cult. V. SZABÓ 1999, 70.

³⁴ Unclassifiable: Nos. 3, 10, 17, 32, 42, 44.

³⁵ see TARBAY–MARÓTI 2023.

³⁶ HARRISON ET AL. 1981; HUGHES ET AL. 1982.

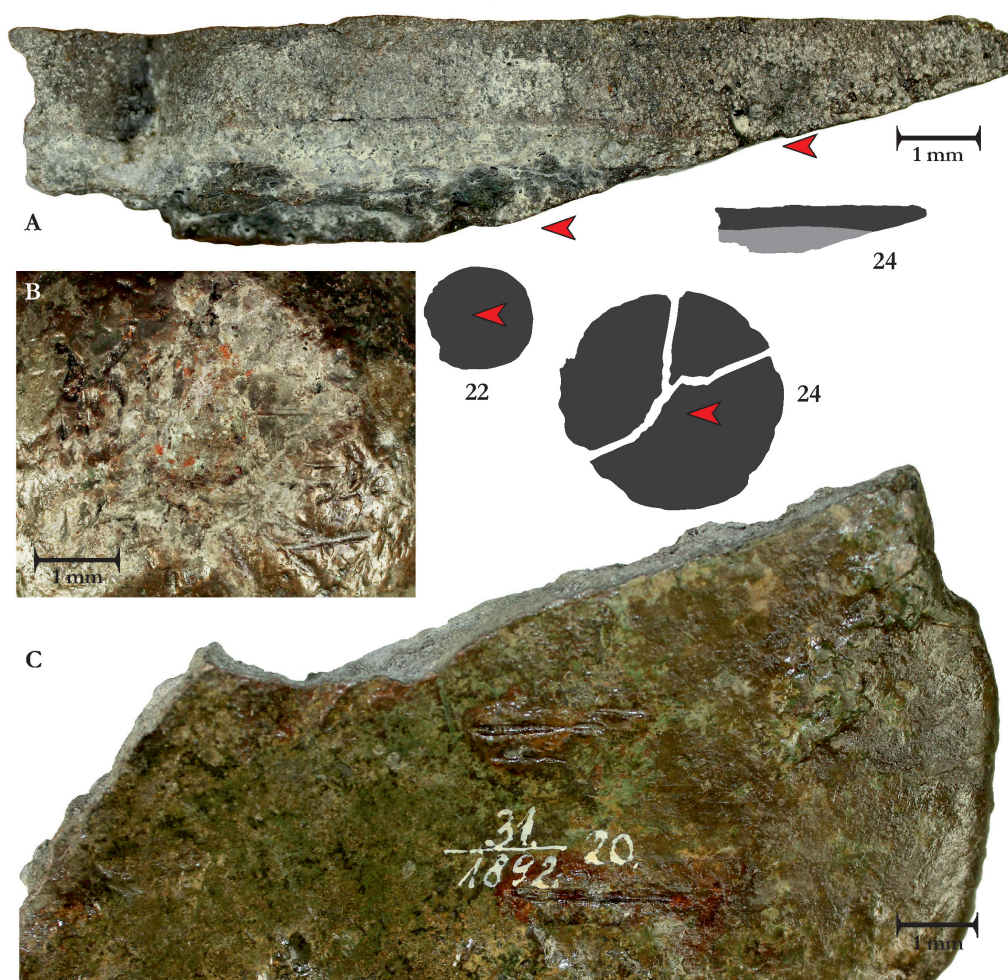


Fig. 6. A. Layers and lead segregation of a plano-convex ingot; B. tool impacts, C. modern tool impacts.

On plano-convex ingots Nos. 21–22 and 24–25, additional layers were visible on the convex sides, which were at the bottom during casting (Fig. 2/21–22, 24; 3/25). These parts have a greyish colour and brittle surfaces, just like corroded lead. The segregated layer is most visible along the modern fracture surface of the largest plano-convex ingot (Fig. 2/24; 6/A). Higher mass percentage of lead in ingots, which is probably the case here, is also characteristic of the Ha A2–Ha B1 and Ha B1 periods, observed in other Hungarian assemblages as well.³⁷

A large number of objects are as-casts (Groups II and III). These are objects that have not received essential post-casting treatment,³⁸

such as the removal of casting seams, repair of casting defects, cold hammering, annealing, grinding, and sharpening of the cutting edges. These objects look nearly the same since they were removed from the casting mould. Within this find group, we differentiate a special category of objects, called Group II, made up of *defective products*. As-casts that received no further post-casting treatment and had several, serious casting defects that prevented their primary intended function were sorted into this category. Such objects most likely did not leave the foundry and were immediately selected for recycling after casting. In the Szentes-Nagyhegy Hoard I, well-identifiable defective products were socketed axes of Palotabozsok and Debrecen types. However, defects were also observable on other as-casts (Group III) and finished products (Group V), two of which showed traces of use (Group VI). This exemplifies that

³⁷ LIVERSAGE–PERNICKA 2002; CZAJLIK 2012, 94–95, 97–98.

³⁸ In rare cases, they may receive minimal 'post-casting treatment', such as the removal of casting jets or testing of edges.

Tab 1. Casting defects in the Szentes-Nagyhegy Hoard I.

Objects	Group	Casting defects total	Core rising	Core shift	Flash defect	Incomplete castings	Porosity	Surface shrinkage	Solid castings	Misrun	Mismatch	Mould imprints
			Fig. 7.D	Fig. 8.A, C	Fig. 7.B–C	Fig. 9.A–B	Fig. 10	Fig. 11	Fig. 7.A	Fig. 12	Fig. 13A–B, D–G	Fig. 14
Spearhead 1	VI	2	0	0	0	0	0	1	0	0	1	0
Socketed axe 2	V	4	0	1	1	0	1	1	0	0	0	0
Socketed axe 3	III/IV	2	0	0	0	1	0	0	0	0	1	0
Socketed axe 4	III	4	0	0	0	1	1	1	0	0	1	0
Socketed axe 5	III	3	1	0	1	0	0	1	0	0	0	0
Socketed axe 6	II	4	1	0	1	0	0	0	1	0	0	1
Socketed axe 7	II	4	0	0	1	1	0	1	0	0	1	0
Socketed axe 8	II	3	0	0	0	0	1	1	0	0	1	0
Socketed axe 9	III	1	0	0	0	0	1	0	0	0	0	0
Socketed axe 10	III/IV	2	0	0	0	0	1	0	0	1	0	0
Socketed axe 11	II	4	1	0	1	0	1	1	0	0	0	0
Socketed axe 12	II	3	0	1	0	0	1	0	0	0	1	0
Socketed axe 13	II	3	0	1	0	0	1	1	0	0	0	0
Socketed axe 33	III	2	0	0	0	0	1	1	0	0	0	0
Socketed axe 34	II	5	0	0	0	1	1	1	0	0	1	1
Annular ring 35	IV	0	0	0	0	0	0	0	0	0	0	0
Socketed axe 41	III	1	0	0	0	0	0	0	0	0	1	0
TOTAL			3	3	5	4	10	10	1	1	8	2

the presence of a casting defect does not necessarily make an object a dysfunctional defective product, as Late Bronze Age craftsmen often ignored, tolerated, and repaired these defects.³⁹

Casting defects identified on the surface and inside the objects from the Szentes-Nagyhegy Hoard I are core rising (Fig. 7/D), core shift (asymmetry) (Fig. 8/A, C), flash defect (Fig. 7/B–C), incomplete castings (Fig. 9/A–B), porosity (shrinkage or gas porosity) (Fig. 10), surface shrinkage (Fig. 11), solid castings (Fig. 7/A), misrun (Fig. 12), mismatch (Fig. 13/A–B, D–G), and mould imprints (Fig. 14). Recognition of the macroscopic characteristics of these casting defects were essential in the definition of Group II. However, as defects are usually the result of several individual factors or their combination, macroscopic observation is often insufficient to determine the causes of their formulation in an

object, only possible scenarios can be suggested. For a more thorough analysis, casting simulations, experimental casting, and 3D imaging, such as neutron imaging, are needed to reveal the internal structure of objects and to quantify the results of the study.⁴⁰ Here, a brief description is given of the defects observed on the surface and break surface (inside) of the finds from the Szentes-Nagyhegy Hoard I. This overview does not encompass all Bronze Age casting defects but offers a proper selection of the most typical ones.

Objects intended to be cast hollow, like socketed axes, spearheads, arrowheads, and chisels, became solid due to multiple causes related to the casting core. During casting, *core-rising defects* can occur (Fig. 7D), resulting in the partial or complete ejection of the casting core from the moulds. The Szentes-Nagyhegy hoard provides examples of both partial ejection (No. 11)

³⁹ GENER 2011.

⁴⁰ TARBAY ET AL. 2021.

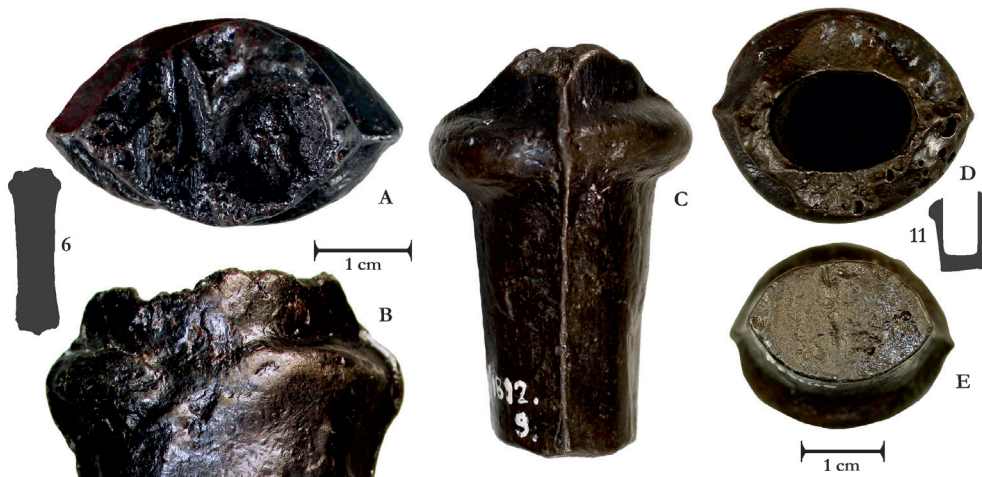


Fig. 7. A. Solid cast; B. Flash defect and shrinkage; C. Flash defect; D. core rising; E. melted break surface.

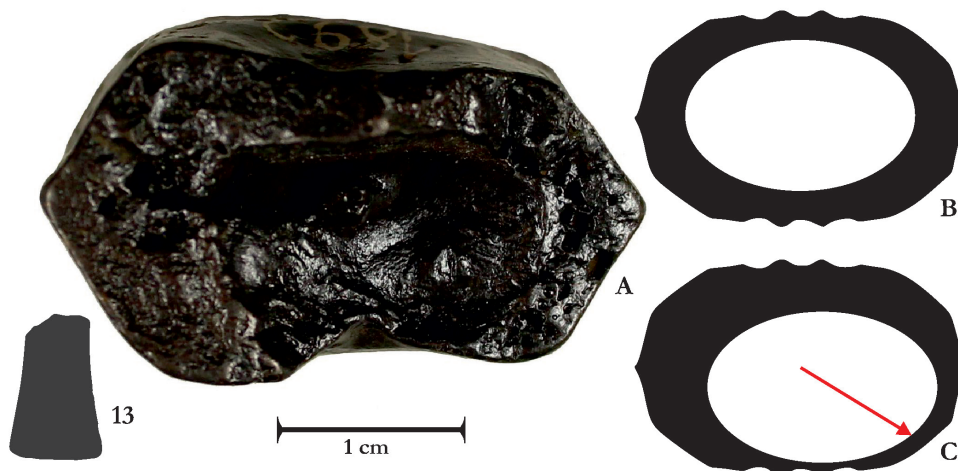


Fig. 8. A. Core shift/asymmetry; B. symmetric socket; C. asymmetry.

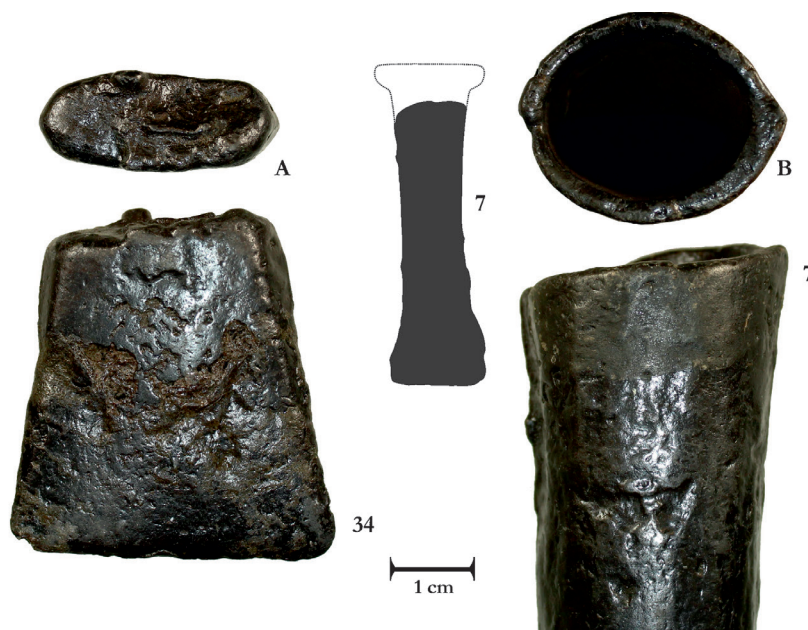


Fig. 9. A. Incomplete cast (axe blade); B. incomplete cast, missing upper part.

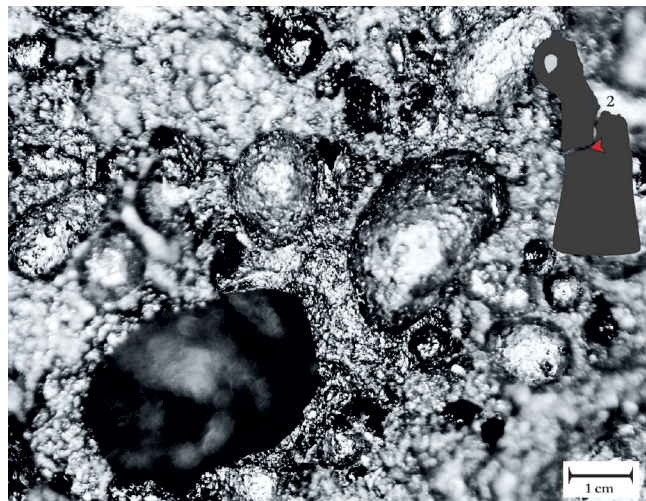


Fig. 10. Porosity.



Fig. 11. A–C. Misrun.

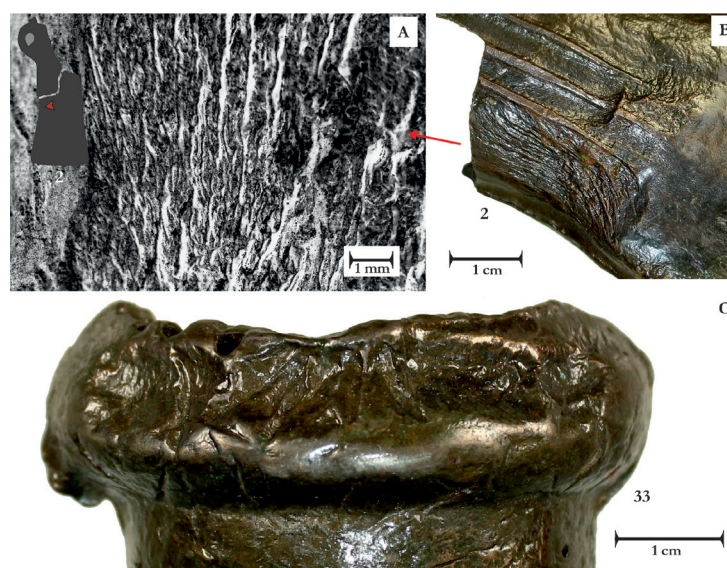


Fig. 12. A. Surface shrinkage (Szentcs-Nagyhegy IA, No. 10); B–C. Surface shrinkage (Jászkarajenő).

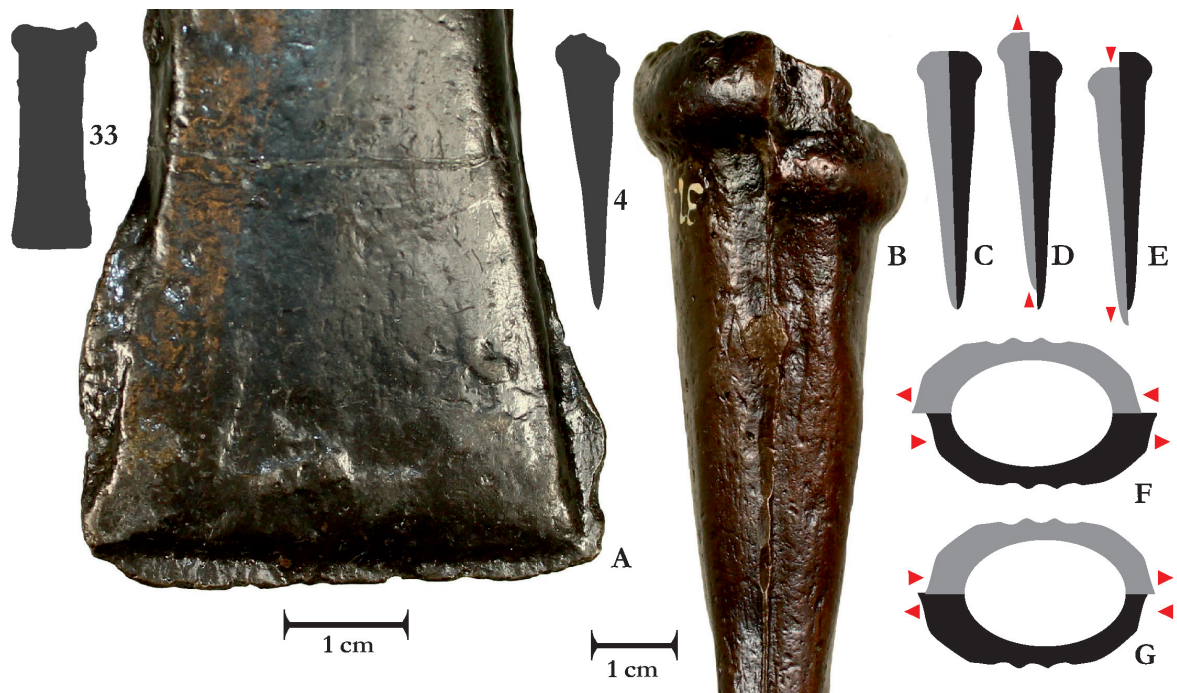


Fig. 13. A, F-G. Horizontal mismatch defect; B, D-E. Vertical mismatch defect; C. Matching halves.



Fig. 14. A-B. Mould imprints; C. Damaged mould negative of a used experimental casting mould.

that caused a too-short socket for hafting, and complete ejection, which led to a *solid-cast object* (No. 6) (Fig. 7A).⁴¹ Analogues of this defect are observed in the Transdanubian Nagydobsza hoard from the same period as the studied ones. Causes of the core rising defect include too-light casting core and improperly pre-heated moulds (or core), which contribute to the formation of gases that result in the ejection of the core. The remedy for this defect is heating the moulds before casting, and the application of a fixing rod, the technical solution of which is observed only on the spearhead (Fig. 1/1), but not the defected Palotabozsok-type axes.⁴²

Asymmetric walls of socketed objects indicate the displacement or *shifting of the casting core* during casting, dissimilar negatives, or irregular-shaped casting cores. Consequently, the defect is either predetermined during the production of the mould halves and cores or formulated during the casting process, probably due to a similar reason as a core-rising defect. Due to this asymmetry, one side of the sockets becomes thinner than the other (Fig. 8/C), making the objects less resistant to mechanical stress. The defect is common among all kinds of objects cast with a core, such as spearheads, socketed axes, arrowheads, disc-butted axes, etc.⁴³ The most extreme example of this defect type is the No. 13 socketed axe, which has a wall less than a millimetre thick on one side (Fig. 2/13; 8/A).

Flash defects usually occur when the two mould halves mismatch. These are typically large casting seams or burrs. Flashes can occur on the rim area of the socketed axes when it becomes a thick projection due to excess metal which partly fills the pour cup of the negative. This kind of flashes are characteristic of the finds from the Szentes-Nagyhegy Hoard I (Fig. 1/5–6; 2/11; 7/B–C). The occurrence of this defect is probably connected to the improper shape of the casting core or its rising during casting.

Flashes can be broken off, then their traces can be further smoothed by grinding stones and hammering. There are several reasons behind the formation of flash defects, such as damaged moulds, improperly matching mould negatives or the displacement of mould halves during casting.⁴⁴

Both *misrun defects* (Fig. 11) and *incomplete castings* (Fig. 9) can be characterised by rounded edges. Misruns usually occur as small, round-edged holes on the walls of socketed axes or the blade or handle parts of flanged sickles. The breakage surface of one of the socketed axes from Szentes-Nagyhegy shows a macroscopic trace indicating a misrun (Fig. 11/A). Further characteristic examples are known in the Jászkarajenő hoard (Fig. 11/B–C). An object becomes an incomplete cast when parts of it missing to a greater or lesser extent. For instance, a socketed axe may lack any parts from the smallest (loop, rim) to the larger ones (blade, upper part). A proper example of the latter is the No. 34 socketed axe, of which only the blade part has been cast (Fig. 3/34; 9/A). These defects occur when the metal flowing through the channels does not fuse properly and does not fill the cavity of the mould, leaving incomplete, round-edged surfaces in the casting. In industrial casting, these defects have the same causes: low casting temperature, insufficient melt fluidity, mould defects (faulty pattern, gating system, risers), insufficient metal for casting in the crucible, and an improperly manufactured core. According to Ó Faoláin and Northover, incomplete casting can occur if the mould halves are not pre-heated properly.⁴⁵

Pores on the breakage surface of the castings, and sometimes also on their surfaces are a result of *porosity*. There are two main types of this defect concerning Late Bronze Age castings: gas porosity and shrinkage porosity. Gas porosity usually occurs as globular, almost spherical,

⁴¹ Another explanation is that the object was intended to be solid.

⁴² TARBAJ 2016, fig. 6/2, 11; 14/12; TARBAJ 2018, 245–246; TARBAJ 2022a, 56, fig. 3/1.

⁴³ MOZSOLICS 1985b, pl. 13/3; TARBAJ 2016, fig. 6/3; TARBAJ 2018, 246.

⁴⁴ BRIDGFORD 2000, 122; QUILLIEC 2007a, 406; RAJKOLHE–KHAN 2014, 379, fig. 9; TARBAJ 2018, 245; MOLLOY 2019, 17; MOLLOY–MÖDLINGER 2020, 196; TARBAJ 2022a, 67, fig. 3/6, pl. 56/A–B.

⁴⁵ MOZSOLICS 1985b, pl. 13/1; Ó FAOLÁIN–NORTHOVER 1998, 73; MÖDLINGER 2011, 13; RAJKOLHE–KHAN 2014, 377–378, fig. 5; TARBAJ 2016, fig. 6/2; ATLAS 2017, 35; TARBAJ 2018, 246; TARBAJ 2022a, pl. 56C; 57D.

round-edged pores in the material. It is caused by metal vapours and gases generated during the casting process, which then allow air and gas inclusions to be formed inside the castings (Fig. 10). Improper drying of the casting moulds and cores can also trigger gas porosity. Shrinkage porosity occurs when the wall of the castings does not solidify simultaneously and the liquid metal used to replenish the shrinkage is not provided. Morphologically, it can be characterised by elongated cavities inside the cast. However, the two types of porosity are hardly distinguishable macroscopically, only advanced analytical techniques such as neutron imaging can reveal their differences. Multiple pores concentrated in one area can transform the casting structure susceptible to fracture. Porosity is quite severe among the axes in the Szentes-Nagyhegy Hoard I. Pores appear both on their surfaces and insides, sometimes in connection with surface shrinkage. In some cases, the socketed axes of the studied hoard were fragmented along these porous areas (e.g. Fig. 1/2, 10; 2/12–13; 3/33).⁴⁶

Surface shrinkage of Bronze Age objects occurs as depressions with irregular outlines on their surfaces (Fig. 12). Ten socketed axes from the Szentes-Nagyhegy Hoard I bear such traces. The most prominent examples are displayed along the narrow side of the No. 2 socketed axe (Fig. 12/A–B), and on the collar of the No. 33 axe (Fig. 12/C). These defects occur when the molten metal shrinks during solidification, and the shrinking of the castings is uneven, causing the collapse of the adjacent skin due to atmospheric pressure. Several causes are known for the occurrence of this defect in industrial casting. For Late Bronze Age products, inadequate feeding and temperature problems with the metal or moulds are the most probable causes.⁴⁷ If surface shrinkage is not combined with internal shrinkage, the artefact can fulfill its function but it becomes less pleasing aesthetically for a

modern observer. The No. 33 socketed axe with a large depression on its collar and incompletely cast rib patterns is a proper example of this phenomenon.

Mismatch is one of the most common casting defects of objects cast in two-piece moulds. It occurs when the two halves of the mould do not meet, causing a horizontal (Fig. 13/A, F–G) or vertical (or both) shift (Fig. 13/B, D–E) of the cast sides of the casting. Improper matching of the mould halves' negatives and the displacement of the mould halves during casting can contribute to this defect. Mismatches are generally tolerated, ground and hammered away during post-casting treatment.⁴⁸ This defect surely can be brought to the extreme, as it happened with the No. 4 socketed axe, the collar of which shifted vertically on each side, offset by centimetres, likely due to the different lengths of the mould negatives (Fig. 13/B). This is not a typical mismatch because the patterns of the axe halves are different. The bronzesmith probably used two pseudo-winged axe mould halves with different styles and sizes for casting, which resulted in this oddly-looking axe.

Mould imprints are formed when the negative of a casting mould is damaged, i.e., parts of the negative are broken off due to use. The mould imprints on the castings became amorphous protrusions on the surfaces (Fig. 14/A–B). In our experience with sandstone and soapstone casting moulds, mould damage reaching the negatives occurs after the first casting, during the removal of the as-cast, when the stone casting mould is heated and the negative becomes more susceptible to fragmentation (Fig. 14/C–D). Perhaps these axes were cast in an already damaged casting mould after the first casting. Mould imprints also do not prohibit the use of the castings, they can be removed by intensive grinding or left untreated.

The casting defects described above are present in different combinations on the defective products of Szentes-Nagyhegy Hoard I. Some defects are so severe that they render these products unusable. Several pieces cannot be

⁴⁶ ERSFELD 1990, 18, 20, fig. 14; BORN–HANSEN 1991, 149, fig. 3; ZHANG ET AL. 1995, 607–609; ARMBRUSTER 2000, 68; BRIDGFORD 2000, 52–54, 68, 125; QUILLIEC 2007a, 406, fig. 8; QUILLIEC 2007b, 100; ZHAO ET AL. 2009; BINGGELI 2011, 17–19; GENER 2011, 121; RAJKOLHE–KHAN 2014, 378, 380–381; POLA ET AL. 2015; ATLAS 2017, 27–28, 49, 51; TARBAY 2018, 246–247; TARBAY 2022a, pl. 58A.

⁴⁷ ATLAS 2017, 51.

⁴⁸ MOZSOLICS 1985b, 27, pl. 14/3; QUILLIEC 2007b, 100; RAJKOLHE–KHAN 2014, 378–379, fig. 7; TARBAY 2016, fig. 6/1, 5; TARBAY 2018, 245; TARBAY 2022a, pl. 57C.

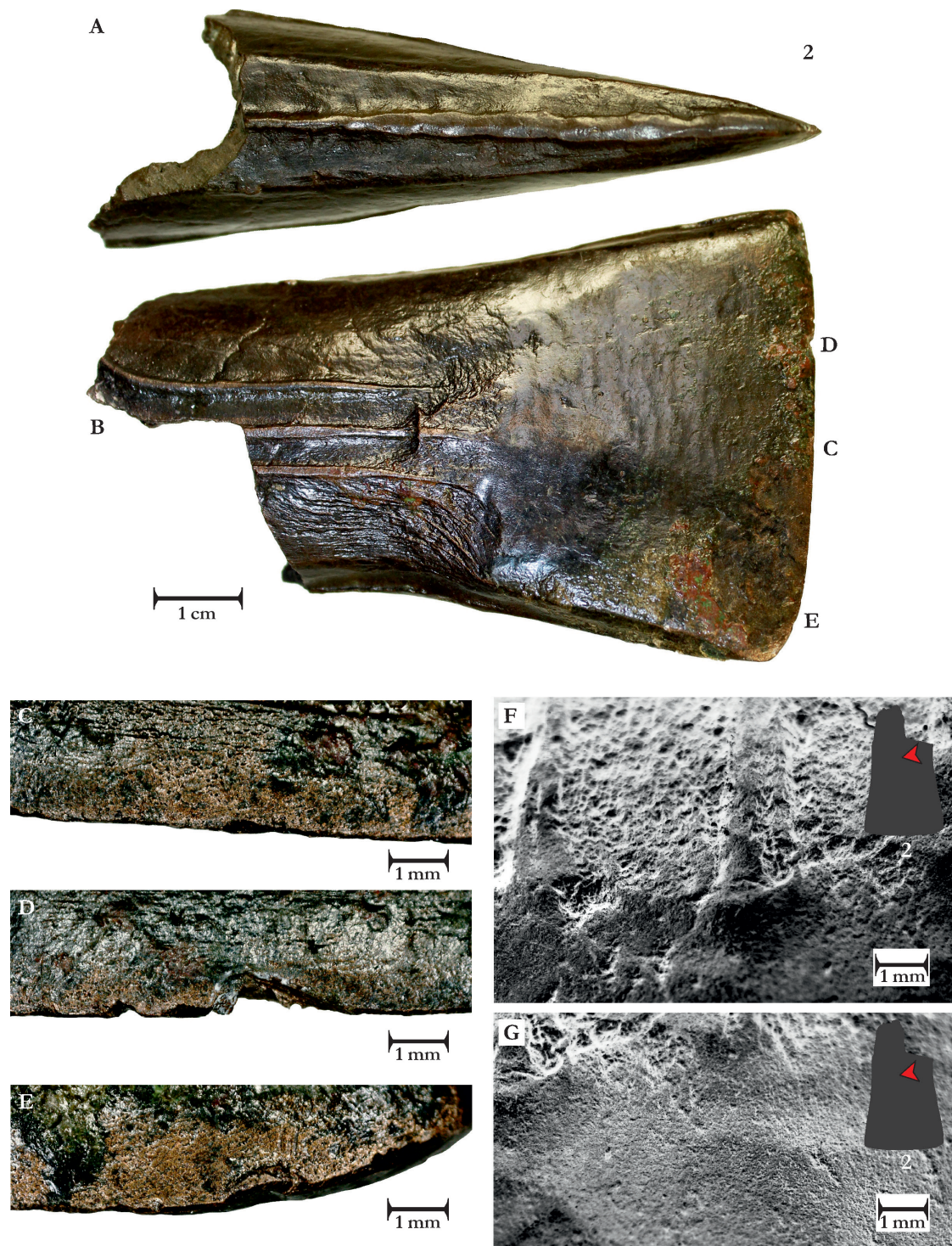


Fig. 15. A. Superficially hammered casting seams along the narrow side of a socketed axe; B. hammered cutting edge; C. dent; D. notch; E. bow; F. the meeting point of the as-cast and hammered surface of a socketed axe; G. the hammered surface of a socketed axe.

hafted because they are only blade parts or their sockets are partially (Fig. 2/11) or completely solid (Fig. 1/6). A few axes have a heavily porous structure that is also visible on their surface (Fig. 1/8; 2/12). If these tools had been used they

would surely have broken. The casting quality of these objects is so low compared to other Late Bronze Age products from the eastern Carpathian Basin that it is difficult to imagine them being the products of a professional metalworker who

aimed to create usable products. They may be results of technical experimentation with a new alloy, casting techniques, mould or core materials; or they are products of an apprentice who attempted to master the casting of socketed axes in two-piece casting moulds with a core.

The as-casts of the Szentes-Nagyhegy Hoard I belonging to Group III could have become functional products if received post-casting treatment, even if they had minor casting defects (Fig. 1/4–5, 9; 3/33; 4/41; 5). Only the casting jets were removed from these objects, and their casting defects seem repairable and less severe than the ones observed in artefacts of Group II. What makes it hard to differentiate them from the defective products is that the craftsmen decided not to invest further work into finishing them. However, their decisions are difficult to comprehend millennia later. Perhaps a higher aesthetic standard was sought for the objects or it was not worth the effort to invest in the post-casting treatment to transform them ready to use. Furthermore, the minor fractures visible on some of these objects may not be fragmentation in the classical sense, but the results of hammer blows testing the usability and casting quality of the objects, which eventually did not pass the test (Fig. 1/5; 3/33).

The degree of fragmentation also influences technological classification. Technological and use-wear traces are less prominent on smaller objects (Fig. 5/3, 10, 17) than on larger ones. If the objects are complete or the fragments are larger and relevant for the observation of post-casting treatment traces, they can be sorted into the finished product category. We differentiate between three such categories. Finished products without observable use-wear traces (Group IV) are cast items that are in a state of completion and have received all the post-casting treatments required. Use-wear traces are not observable on the surfaces of these objects due to preservation conditions, restoration, or their intentional removal in prehistory. As Horn has pointed out, such an object is not necessarily an unused product; the term only means that traces are not possible to observe on its surface.⁴⁹ In

our case, the annular ring with a ground surface (Fig. 3/35), the bronze cup (Fig. 2/14), and the folded and perforated sheet metal object (Fig. 2/15) were sorted into this category.⁵⁰

The next two categories are represented by two objects only. Group V includes finished and used products (Fig. 5) that are in a state of completion and have received all the post-casting treatments required. Use-wear traces, generally micro-edge damages, are also observed on their surfaces. The No. 2 socketed axe fulfils these requirements. Despite visible surface shrinking (Fig. 12/A–B), the blade of the case is carefully hammered along the wider sides based on small depressions left by a hammer (Fig. 15/A–B, F–G).⁵¹ Such traces appear to be present along the narrow sides of the blade, but the execution is superficial and technically only flattens the casting seams along this part (Fig. 15/A). The cutting edge also shows lateral striation (Fig. 15/C–D) caused by sharpening. Traces along the object's cutting edge, such as a dent (Fig. 15/C), notches (Fig. 15/D), and a bow (Fig. 15/E), indicate the use of this tool.⁵²

The last group (Group VI) consists of finished and heavily used products (Fig. 5) that are in a state of completion and have received all the post-casting treatments required. Use-wear traces, different general traces of abrasion (worn surfaces, dull edges, worn damages), repair traces, and modifications of the initial cast shapes (re-shaped tips, asymmetric or narrow blades, secondary added peg holes, shortened tip/socket) are observed on them. At the moment, it is not possible to determine whether the objects were used for an extended period or if they were used intensively for a short period. No. 1 spearhead is a proper example of such an object (Fig. 1/1). The upper half of the original blade is missing (Fig. 16/A), the tip was probably broken off or became heavily damaged due to repeated thrusting or throwing actions at the

⁴⁹ HORN 2013, 36; HORN 2015, 203.

⁵⁰ No. 16 sheet metal fragment probably belongs to this category, as it is most likely part of a larger product.

⁵¹ SZABÓ 2013, 88–90.

⁵² ROBERTS–OTTAWAY 2003, 126–127, fig. 25; DOLFINI ET AL. 2023.

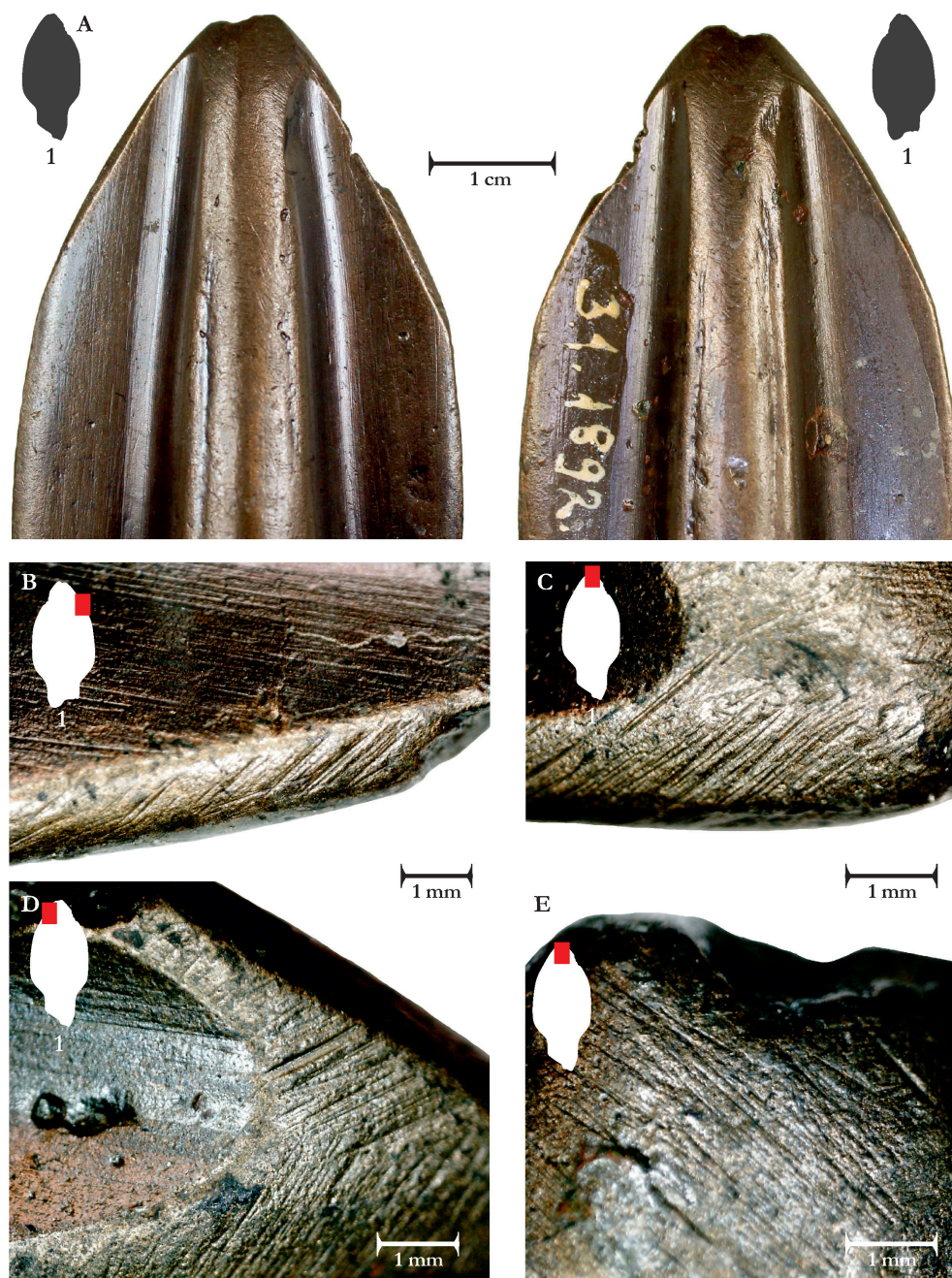


Fig. 16. A. Re-shaped tip; B. rasped edge, grinding traces, worn edge; C–E. rasped, worn edge and tip.

target.⁵³ At one point, the damaged tip of the spearhead was completely reshaped; the craftsmen formed a new cutting edge and a tip by removing and rasping the damaged part, making the blade significantly shorter. The rounded surfaces along the cutting edges indicate that the

spearhead was used after this repair (Fig. 16/B–E). The object's surface shows heavy abrasion, resulting in blurring and almost complete wear of its profiled midrib (Fig. 16/A). This phenomenon suggests that the spearhead had been used intensively and for a longer period before deposition until the object became completely useless for fulfilling its weapon function.

Fragmentation analysis of the artefacts was limited since they were studied in a restored

⁵³ It is also possible that the missing tip had a higher porosity concentration that weakened the weapon during use and it finally broke off.

state which hindered the identification of modern, post-recovery breakages. Only a few objects, such as the No. 2 socketed axe (Fig. 1/2), the No. 24 plano-convex ingot (Fig. 2/24), and the No. 44 unclassifiable object (Fig. 4/44), showed clearly distinguishable modern manipulation, in the form of clean breakage surfaces devoid of patina (Fig. 6/A, C). It seems that both the large plano-convex ingot and the socketed axe were shattered into pieces. Based on Hampel's published plates, it should have happened around 1892.⁵⁴ The surface of No. 44 was completely altered by some kind of modern polishing by a rasping tool (Fig. 4/44). The rest of the objects are fragmented intentionally, probably in prehistoric times, regardless of the technological group to which they belong (Fig. 5). Only a few complete objects remained, two incomplete castings, four plano-convex ingots, and one triangle-shaped ingot (Fig. 5/20–24, 7, 34). The chronology of fragmentation cannot be established with any certainty but several signs indicate that it happened before hoarding. One of the arguments is the technological composition of the hoard. Plano-convex ingots are more likely to be split in the foundry for the remelting process in a reheated state with hammers as described in detail by Bianka Nessel and Daniel Modl.⁵⁵ These ingots are easily portable in their original shape but hardly fit into crucibles for remelting. Mishits on the plano-convex ingots, are present in two cases: on the flat side of the No. 24 plano-convex ingot and in the middle of the No. 22 ingot (Fig. 6/B). On the former, the impacts have a different, brighter patina than the rest of the object (Fig. 6/A). The direction of the mishits also corresponds with the modern breakage of the ingot, suggesting that these can be associated with post-recovery fragmentation (Fig. 6/C). The breaks of most objects are sharp without hammer impacts, mishits of chisels or comprehensive deformation on the surface, which morphology suggests the hot shortening technique described by Knight.⁵⁶ There are a few exceptions, however. Chisel marks in connection to abandoned breakage are seen on the

wider and narrower sides of some axes (e.g., Nos 4, 6, 8) but their prehistoric or modern origin cannot be determined. These ingots and as-cast objects were likely piled up and fragmented in a metalworker's workshop. In this sense, the as-cast objects also served as a sort of recyclable raw material. Among the finished products, there are various types of fragments, ranging from the smallest pieces hardly resembling the original object (e.g., sword hilt fragment) (Fig. 2/17) to larger fragments like the broken spearhead (Fig. 1/1), the bronze cup (Fig. 2/14), and a split socketed axe (Fig. 1/2). The fragmentation of a few finished products probably served a practical purpose, such as recycling broken ingots or as-cast objects as raw materials. The No. 1 spearhead, used to the limits in its original function, perhaps was prepared for remelting (Fig. 1/1). Besides, the hoard contains objects that were probably broken intentionally in a functional state, like the No. 2 socketed axe (Fig. 1/2).⁵⁷ This may be explained by the nature of object selection in hoards. If the object was damaged for a ritual assemblage, only a small symbolic piece would be deposited, while the rest of the object would be retained to be recycled in the workshop of the metalworker.⁵⁸

CONCLUSIONS

As Amália Mozsolics has pointed out, the composition and fragmented condition of this assemblage is not without parallels in the Carpathian Basin, essentially in Transdanubia and the southern Great Hungarian Plain.⁵⁹ This makes the interpretation of this assemblage difficult, which is further hindered by the unknown context and the possibly incomplete state of the acquired assemblage.⁶⁰ From a technological

⁵⁴ See HAMPEL 1896, pl. 193/1.

⁵⁵ NESSEL 2014, 405–407; MODL 2019, 375–377, fig. 2.

⁵⁶ KNIGHT 2019.

⁵⁷ One of the breakage surfaces of this socketed axe is modern.

⁵⁸ TARBAY 2022a, 114, 137–138.

⁵⁹ MOZSOLICS 1985b, 24–27; TARBAY 2022a, 146–148.

⁶⁰ Late Bronze Age objects were retrieved mixed with other finds on two occasions of the three when parts of the hoard were purchased. In light of these circumstances, the original assemblage was perhaps much larger, and other finds could be left in the findspot or retained by the finders and the original owner.

point of view, Hoard I from Szentes-Naghegy is a collection of potentially alloyed ingots and as-cast objects, some of which were unsuitable for use due to casting defects, while others received no post-casting treatment. Apart from the presence of a few finished and used products, ingots and as-casts dominate the hoard which is also characterized by heavy intentional fragmentation (Fig. 5). Similar selections of objects are known from Ha B1. These are large hoards containing several intentionally fragmented finished and used products, of diverse technological groups. They also appear as other assemblages (e.g., Lovasberény,⁶¹ etc.), or they form hoards with uniform selection preferring metallurgy-related objects, such as the hoards from Csabdi,⁶² Kemendollár,⁶³ Nagydobsza,⁶⁴ and Beremend.⁶⁵ Additional objects associated with metalwork that the Szentes-Naghegy Hoard I is lacking may also appear in them, like casting jets and droplets. In our analysis, these objects would form an individual category, the distinguishable by-products. These 'foundry hoards' would illustrate well the hoarding of practical, recyclable raw materials that were not ultimately used and left *in situ* at metalworking sites. These hoards, however, show recurrent typological patterns besides the technological ones, as if someone realized the same intentional hoard construction idea repeatedly, by selecting objects with similar techno-typological characteristics out of foundry recycle bins. Two Southern Transdanubian assemblages, the Nagydobsza and the Beremend hoards refer to Szentes-Naghegy in particular, they display similar technological tendencies on the same type of objects, right down to the smallest selected fragments. Thus, these hoards have the same selection pattern of both the large and small items. They also contain one or two spearheads, a small piece of a flange-hilted sword (Nagydobsza), and a blade fragment (Beremend). They mainly consist of as-cast and defected product axes of the Palotabozsok and Debrecen types and also contain different

ingots including triangle, bar-shaped and plano-convex specimens.⁶⁶ Information regarding their contexts is meagre, both Nagydobsza and Beremend were found in a pit, the latter at an Urn-field settlement.⁶⁷ The *in situ* spatial arrangement of the objects is completely unknown, as well as their location within the sites. We do not know if they were situated in the vicinity of houses as raw material stocks or pits related to casting workshops, or if they were special ritual assemblages carefully arranged and selected directly from casting workshops, most likely by the metalworker. The intriguing similarities in the composition of these assemblages suggest a consciously constructed idea of a hoard. Together with the selection of objects from foundry materials that follow a common concept, these phenomena open up the possibility for a ritual interpretation of this quite mundane collection of hoards.

CATALOGUE⁶⁸

Szentes-Naghegy IA (Hungarian National Museum, Inv. No. 31.1892.1–38)

1. **Spearhead** (Group VI): Small spearhead fragment with a leaf-shaped blade, two peg holes and a profiled midrib. O.: shrinkage, mismatch, worn surface, re-shaped tip, broken. L.: 70.03 mm, W.: (b/mr) 32.06×16.12 mm, Th.: (b) 2.02 mm, Wt.: 62.6 g (Fig. 1/1; 15/A–E).
2. **Socketed axe** (Group V): A socketed axe with a thick collar and a loop in two fragments. It is decorated with three horizontal ribs, one Y-shaped rib and two broken ribs below them, on both wide sides. O.: hammered blade, ground, flash, shrinkage, porosity, notch, bow, slightly asymmetric blade, breakage, modern breakage.

⁶⁶ MOZSOLICS 1985a, 95–96; TARBAY 2016.

⁶⁷ MOZSOLICS 1985a, 95; TARBAY 2016, 86–89, fig. 2.

⁶⁸ Abbreviations: O. Observations; Group I – ingot; Group II – as-cast, defective product; Group III – as cast; Group IV – finished product, use-wear traces not observable; Group V – finished products with use-wear traces; Group VI – finished, heavily used products, U – unclassifiable into groups; L – Length, W – Width., b/mr – blade-midrib interface, bs – blade-socket interface, r – rim, H – Height, Th – thickness, b – blade, Wt – Weight.

⁶¹ MOZSOLICS 1985a, 144–145; MOZSOLICS 1985b, 59.

⁶² MOZSOLICS 1985a, 107

⁶³ TARBAY 2023a.

⁶⁴ TARBAY 2016.

⁶⁵ MOZSOLICS 1985a, 95–96; MOZSOLICS 1985b, 50–51.

L.: 115.51 mm, W.: (bs) 35.31×23.25 mm, W.: (b) 47.15 mm, Wt.: 254.6 g (Fig. 1/2; 10; 15/A–G).

3. **Socketed axe** (U): A socketed axe with a thick collar. On one side, an incomplete and uncertain rib pattern is visible. O.: incomplete loop, incomplete pattern, mismatch, breakage. L.: 47.77 mm, W.: (r) 40.34×32.59 mm, Wt.: 62 g (Fig. 1/3).

4. **Socketed axe** (Group III): Pseudo-winged socketed axe. One side of the axe is decorated with pseudo wings and two horizontal ribs, while the other lacks horizontal ribs. The object was made by assembling two different negatives. O.: extreme mismatch, incomplete loop, shrinkage, porosity, blade impacts on the body and the cutting edge, breakage. L.: 121.48 mm, W.: (r) 35.84×29.81 mm, W.: (bs) 24.75×14.49 mm, W.: (b) 41.21 mm, Wt.: 216.2 g (Fig. 1/4; 13/B).

5. **Socketed axe** (Group II): Narrow socketed axe with a thick collar. O.: core rising, flash, shrinkage, breakages. L.: 121.27 mm, W.: (r) 26.65×26.86 mm, W.: (bs) 25.75×13.20 mm, W.: (b) 36.23 mm, Wt.: 244.1 g (Fig. 1/5; 14/B).

6. **Socketed axe** (Group II): Narrow socketed axe with a thick collar. O.: solid cast/core rising, incomplete collar, mould imprint, fragmented edge, impacts on the blade and along the narrow sides. L.: 117.28 mm, W.: (r) 37.36×21.34 mm, W.: (bs) 24.52×15.16 mm, W.: (b) 28.88 mm, Wt.: 254.9 g (Fig. 1/6; 7/A–B; 14/A).

7. **Socketed axe** (Group II): Large, narrow socketed axe. O.: incomplete defect, flash, mismatch, shrinkage. L.: 128.49 mm, W.: (r) 34.25×26.61 mm, W.: (bs) 28.85×18.17 mm, W.: (b) 43.68 mm, Wt.: 336.5 g (Fig. 1/7; 9/B).

8. **Socketed axe** (Group II): Upper fragment of a narrow-socketed axe with a thick collar. A jet remains visible on the rim. O.: shrinkage, porosity, mismatch, breakage, tool impact. L.: 68.18 mm, W.: (r) 38.21×26.53 mm, W.: (bs) 27.94×16.83 mm, Wt.: 168 g (Fig. 1/8).

9. **Socketed axe** (Group III): Upper fragment of a narrow-socketed axe with a thick collar. The object is broken into two parts. O.: porosity, breakage. L.: 76.65 mm, W.: (r) 43.79×32.47 mm, W.: (bs) 26.15×14.19 mm, Wt.: 158 g (Fig. 1/9).

10. **Socketed axe** (U): Upper fragment of a narrow-socketed axe. Two broken jet remains are visible on the rim. O.: porosity, misrun, breakage. L.: 47.49 mm, W.: (r) 42.05×32.53 mm, Wt.: 78.7 g (Fig. 1/10; 11A).

11. **Socketed axe** (Group II): Upper fragment of a narrow-socketed axe with a thick collar. O.: porosity, shrinkage, core rising (depth of the socket: 24.89 mm), breakage (melted break surface). L.: 43.35 mm, W.: (r) 33.61×27.53 mm, Wt.: 90.2 g (Fig. 2/11; 7/C–E).

12. **Socketed axe** (Group II): Blade fragments of a socketed axe. O.: porosity, core shift, mismatch. L.: 38.54 mm, W.: (b) 44.64 mm, Wt.: 68.3 g (Fig. 2/12).

13. **Socketed axe** (Group III): Blade fragment of a socketed axe. O.: shrinkage, porosity, core shift, breakage. L.: 73 mm, W.: (bs) 33.83×18.59 mm, W.: (b) 45.77 mm, Wt.: 222.4 g (Fig. 2/13, Fig. 8/A–C).

14. **Bronze cup** (Group IV): Rim fragment of a bronze cup with a straight rim. O.: breakage. 157.20×95.65 mm, H.: 32.49 mm, Th.: 0.20 mm, Wt.: 24.2 g (Fig. 2/14).

15. **Perforated sheet** (Group IV): A large, rectangular sheet with two or more perforations. O.: folding. 40.20×22.50 mm, Th.: 0.47 mm, Wt.: 3.00 g (Fig. 2/15).

16. **Metal sheet [metal vessel]** (Group IV): Metal sheet fragment, probably from the neck area of a vessel. Maybe belongs to No. 14, but refitting was not possible. O.: breakage. 35.61×21.46 mm, Th.: 0.37 mm, Wt.: 1.7 g (Fig. 2/16).

17. **Sword** (Group IV): A hilt fragment of a flange-hilted sword. O.: breakage. 45.43×7.51 mm, Th.: 7.32×8.04 mm, Wt.: 14 g (Fig. 2/17).

18. **Bar ingot** (Group I): Middle fragment of a bar ingot with a triangular cross-section. O.: breakage. L.: 50.76 mm, Th.: 20.48×8.39 mm, Wt.: 44.8 g (Fig. 2/18).

19. **Bar/loaf-shaped ingot** (Group I): Edge fragment of a bar- or loaf-shaped ingot. O.: breakage. L.: 40.48 mm, Th.: 21.56×11.51 mm, Wt.: 41.3 g (Fig. 2/19).

20. **Triangle-shaped ingot** (Group I): A

triangle-shaped ingot with broken jet remains. 64.41×48.97 mm, Th.: 12.32–4.58 mm, Wt.: 138.6 g (Fig. 2/20).

21. **Plano-convex ingot** (Group I): Round and flat, plano-convex ingot with lozenge cross-section. 84.96×83.99 mm, H.: 16.47 mm, Wt.: 547.2 g (Fig. 2/21).

22. **Plano-convex ingot** (Group I): Round plano-convex ingot. O.: layered modern and prehistoric blade impacts. 77.38×73.71 mm, H.: 19.08 mm, Wt.: 452.6 g (Fig. 2/22; 6/B).

23. **Plano-convex ingot** (Group I): Round plano-convex ingot. 74.41×75.28 mm, H.: 12.08 mm, Wt.: 280 g (Fig. 3/25).

24. **Plano-convex ingot** (Group I): Large, round plano-convex ingot in three fragments. O.: modern break, modern blade impacts. 189×205 mm, H.: 20.89 mm, Wt.: 3038 g (Fig. 2/24, Fig. 6/A, C).

25. **Plano-convex ingot** (Group I): A quarter fragment of a plano-convex ingot. O.: Circular imprint on the convex side, breakage. 118×117 mm, H.: 43 mm, Wt.: 1531 g (Fig. 3/25).

26. **Plano-convex ingot** (Group I): Quarter-rim fragment of a plano-convex ingot. O.: breakage. 80.71×61.26 mm, H.: 18.83 mm, Wt.: 353.4 g (Fig. 3/26).

27. **Plano-convex ingot** (Group I): Quarter-rim fragment of a plano-convex ingot. O.: imprint, breakage. 77.01×47.42 mm, H.: 26.93 mm, Wt.: 291.4 g (Fig. 3/27).

28. **Plano-convex ingot** (Group I): Rim fragment of a plano-convex ingot. O.: breakage. 59.96×37.72 mm, H.: 37.75 mm, Wt.: 240.4 g (Fig. 3/28).

29. **Plano-convex ingot** (Group I): Quarter fragment of a plano-convex ingot. O.: breakage. 64.44×61.72 mm, H.: 18.84 mm, Wt.: 149.8 g (Fig. 3/29).

30. **Plano-convex ingot** (Group I): Rim fragment of a plano-convex ingot. O.: breakage. 59.59×31.97 mm, H.: 12.09 mm, Wt.: 96.8 g (Fig. 3/30).

31. **Plano-convex ingot** (Group I): Rim fragment of a plano-convex ingot. O.: breakage.

46.82×35.52 mm, H.: 12.76 mm, Wt.: 80.4 g (Fig. 3/31).

32. **Unclassifiable object** (U): A wall fragment of an unclassifiable object. O.: breakage. 58.28×49.24 mm, H.: 14.44 mm, Wt.: 220.1 g (Fig. 3/32).

Szentes-Nagyhegy IB (Hungarian National Museum, Inv. No. 43.1892.1–8)

33. **Socketed axe** (Group III): Large socketed axe with a thick collar and a broken loop and rim. The object shows traces of blurred rib patterns (1 Y, two side ribs). O.: shrinkage, porosity, mould imprint, breakage. L.: 140.62 mm, W.: (r) 52.55 mm, W.: (bs) 39.50×17.26 mm, W.: (b) 50.33 mm, Wt.: 469 g (Fig. 3/33; 13/A).

34. **Socketed axe** (Group II): Blade of an incomplete cast socketed axe. O.: incomplete cast blade, mismatch, shrinkage. L.: 47.32 mm, W.: (bs) 32.31×13.18 mm, W.: (b) 44.56 mm, Wt.: 107.9 g (Fig. 3/34; 9/A).

35. **Annular ring** (Group IV): Fragment of an annular ring. O.: breakage. 42.77×13.14 mm, Th.: 8.53×4.12 mm, Wt.: 7 g (Fig. 3/35).

36. **Bar ingot** (Group I): A half fragment of a bar ingot with a trapezoid cross-section. O.: breakage. L.: 69.15 mm, Th.: 7.81×9.15 mm, Wt.: 28.4 g (Fig. 3/36).

37. **Plano-convex ingot** (Group I): Quarter fragment of plano-convex ingot. O.: breakage. 76.87×61.87 mm, H.: 6.41 mm, Wt.: 113.2 g (Fig. 3/37).

38. **Plano-convex ingot** (Group I): Rim fragment of a plano-convex ingot. O.: breakage. 59.53×60.69 mm, H.: 16.39 mm, Wt.: 175.2 g (Fig. 3/38).

39. **Plano-convex ingot** (Group I): Quarter fragment of a plano-convex ingot. O.: breakage. 61.40×46.61 mm, H.: 14.04 mm, Wt.: 131.1 g. Cl. ingot (Fig. 3/39).

40. **Plano-convex ingot** (Group I): Quarter fragment of a high plano-convex ingot. O.: breakage. 87×70 mm, H.: 39 mm, Wt.: 377 g (Fig. 3/40).

Szentes-Nagyhegy IC (Hungarian National Museum, Inv. No. 84.1892.183–186)

41. **Socketed axe** (Group III): Lower part of a socketed axe with a straight blade. As-cast. Impact at the middle of the cutting edge. O.: mismatch, breakage. L.: 55.81 mm, W (bs) 29.08×16.71 mm, W: 33.62 mm, Wt.: 135.8 g (Fig. 4/41).

42. **Socketed axe** (U): 'Like the former [No. 41 socketed axe], but its blade is cut off. L.: 3.7 cm, W.: 2.6 cm.'⁶⁹ The object has been lost. On

Kemenczei's plate, it is a middle fragment of a pseudo-winged axe (Fig. 4/42).⁷⁰

43. **Plano-convex ingot** (Group I): Slice of a plano-convex ingot. O.: breakage. 75.64×48.39 mm, Th.: 19.59 mm, Wt.: 345.8 g (Fig. 4/43).

44. **Unclassifiable** (U): Edge fragment of a lozenge-shaped rod. O.: modern breakage and grinding. 38.90×29.55 mm, Th.: 8.93 mm, Wt.: 63.6 g (Fig. 4/44).

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⁶⁹ Inventory Book of the HNM 1892.84.84.

⁷⁰ after KEMENCZEI 1996, fig. 33/8.

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ROMAN COSMETIC AND MEDICAL INSTRUMENTS FROM CĂLUGĂRENI / MIKHÁZA

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One of the most valuable sources of Roman medical and cosmetic knowledge are the artefacts discovered at various archaeological sites. However, determining the exact functionality of these objects is challenging, as many tools could have served a dual purpose. Therefore, we can only speculate about their intended use, unless they are found in a clear context. Numerous objects belonging to these categories have been unearthed in Dacia, but this paper focuses on the 25 artefacts, which originate from the Roman military site of Călugăreni / Mikháza on the eastern limes of Dacia.

Keywords: cosmetics, medicine, Dacia, *limes*, artefacts

Cuvinte-cheie: cosmetică, medicină, Dacia, *limes*, artefacte

Cosmetics played a significant role in the daily life and social identity of the Romans, serving both aesthetic and symbolic purposes. The use of makeup and personal grooming products was prevalent among women and men of varying social classes, though the extent and quality of these items often reflected one's status. Roman cosmetics were not solely about vanity but were deeply embedded in cultural practices, revealing insights into ideals of beauty, social stratification, and the interplay of identity and status within the society, even on the borders of the Empire.¹

The Roman medical practices were a blend of Greek influence, folk remedies, and evolving techniques shaped by the needs of an expansive and diverse Empire. Treatments often included dietary regulation, herbal remedies, bloodletting and surgery. While some practices were advanced for their time, others relied heavily on superstition and religious practices. Military

medicine was also highly developed, surgeons performed amputations, removed projectiles, and treated wounds using tools remarkably similar to modern surgical instruments, mainly to preserve the fighting capacity of the army and the individual soldiers.²

The *Cohors I Augusta Ituraeorum sagittariorum* unit defended the upper Niraj Valley along the eastern *limes* of Roman Dacia for more than 150 years in the 2nd century and the first part of the 3rd century and it was stationed in the auxiliary fort of Călugăreni / Mikháza (Mureș / Maros County, Romania). The components of the site: the auxiliary fort (Area A, Area D), the bathhouse (area B) and the surrounding military *vicus* (Area C, ERC 2018) have been systematically researched since 2013 in the framework of research (Fig. 1) and rescue excavations (ERA, ERC, CAP, CAB).³

² JACKSON 1990.

³ Due to various interconnected projects focusing on the research, conservation, and presentation of sites along the eastern border of Roman Dacia, aerial archaeological, geophysical, architectural and topographical surveys, as well as rescue and research excavations have been undertaken at Călugăreni since 2008. We would like to thank our colleagues who participated in the field researches and in the

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¹ OLSON 2008, 58–79; GUI 2011.



Fig. 1. The excavations until 2024 (auxiliary fort in turquoise): 1961 excavations in blue; 2004, 2011–2012 excavations in green; 2013–2024 excavations in orange (Made by P. Simon and Sz. P. Pánczél).

The archaeological site of Călugăreni presents a rich assemblage of artefacts, including a notable collection of cosmetic and medical tools. These artefacts provide valuable insight into the daily life of the Roman soldiers stationed at the *limes*, as well as the civilian population residing in the military *vicus*. The tools reflect the practical and personal concerns of the community, illustrating their practices of hygiene, health, and self-care. Such artefacts not only shed light on the utilitarian aspects of Roman frontier life, but also underscore the cultural exchange and adaptation within these border regions. The artefacts in question come from excavations at the *principia* of the auxiliary fort (14 objects), the military *vicus* (10 objects), and one was recovered from the close by watch-tower on Pogor Hill⁴ during field survey.

restoration process of the finds, especially Krisztina Csibi and Zsolt-Szabolcs Nagy for their help with the illustrations and Cloudscale Digital for the digital reconstruction of the mirror. For an overview concerning the state of research at Călugăreni, see: SZILÁGYI-PÁNCZÉL 2023, 45–46, and papers published since: KOVÁCS 2023; NAGY-PÁNCZÉL 2024; MATEI-POPESCU-PÁNCZÉL 2024.

⁴ HÖPKEN ET AL. 2016, 246–247.

The term palettes refers to those stone plaques that primarily served as lids for small boxes, which could be pushed in with the help of a rail. The boxes were not only suitable for storing the raw materials needed for various medicines, ointments and cosmetic products, but their owners could also keep valuables in them. Most boxes were probably made of wood, which is why only a few examples have survived, but in some cases bone, ivory and bronze were used as well. These boxes were usually 7–8 cm long and 5–6 cm wide, and had separate compartments covered with individual lids.⁵

Several rectangular and square palettes have been found in Dacia⁶ and our fragments belong to those made of limestone slate (schist).⁷ Besides serving as lids, on the even surface of the palettes medicine, ointments or cosmetic products were prepared.⁸ It is important to note that these lids

⁵ BAKER 2009, 5.

⁶ See mainly: GUDEA-BAJUSZ 1992, 266–258, 288–291 pl. XIV–XVII; VARGA 2015, 191–192, pl. IV/5, V/8.

⁷ RIHA 1986, 46–48, Kat. 189–203, 133–135; Taf. 18–20/189–203.

⁸ VARGA 2015, 184; WELLER ET AL. 2016, 33, 35–36, 41–43.

were always rectangular or square and should not be confused with the round lids of cosmetic *pyxis*,⁹ or the elongated bronze *theca vulneraria*, in which medical instruments were kept.¹⁰

Two palette fragments were found in Călugăreni (Cat. 1–2), both are rectangular box lids, but the boxes were not recovered. In one case (Cat. 2) we can determine the width of the lid and imply the width of the box, which is 7.3 cm, and this is wider than most of the known examples from Dacia. Both came from the *principia* so it can be presumed, that they had a medical or pharmacological utility.

The needles (*acus*) are one of the most common finds at Roman archaeological sites, they are mostly made of bone, bronze, or iron. The needles were basic tools of the *medicus* since they were used for sewing wounds or bandages, but they had a more important role in the textile industry.¹¹

There are needles documented from several sites in the province of Dacia, but the thick bone needles were used for sewing rather than medical purposes, so only metal ones can be considered, such as those from Apulum,¹² Ulpia Traiana Sarmizegetusa¹³ or Porolissum.¹⁴

Of the Călugăreni needles, only one (Cat. 3) is better preserved, even if most of the head is missing, the lower part of a round eye is visible on the preserved shaft. The other two needles (Cat. 4–5) are quite fragmentary and only their corroded tip is preserved, so we cannot exclude, that they might be hairpin or *stylus* fragments. One (Cat. 4) is made of copper alloy, the other (Cat. 5) is made of iron.

The forceps or tweezers (*vulsellae*, *volsellae*) are perhaps the most frequent tools in both medical and cosmetic practice. The larger forceps were mainly used in medicine to lift the skin tissue during surgery and to remove foreign bodies from the human body.¹⁵ For dental sur-

gery, the *forfex*, a special forceps with stronger teeth or the *staphylocaust* were used.¹⁶

The smaller *vulsellae* could also be used for healing purposes – removing smaller foreign bodies (arrow fragments), or meddling with sensitive parts of the human body, such as the eyes,¹⁷ but they were mainly used for epilation by both genders. They were a common tool in baths, where professional hair removal was often carried out by the *alipilus*.¹⁸ They were also used for tweezing the eyebrows as nowadays.¹⁹

Forceps were found at several sites in Dacia and the biggest one is the 16.9 cm long forceps from Berzovia, which narrows down its purpose to a surgical instrument, and the hooked end could have served to remove bladder or kidney stones.²⁰

Our material contains one complete forceps (Cat. 6) and six fragmentary ones (Cat. 7–12), all of them made of copper alloy. The complete one (Cat. 6) was most likely used for cosmetic purposes, which is also supported by the fact that it was discovered in the *vicus*. The head is omega-shaped and the arms are slightly curved inwards and have pointed tips.²¹ Two non-joining fragments of another forceps (Cat. 7) were found, which is quite similar to the previous one, except that the arms seem to be rather parallel.²² The slightly larger forceps head fragment (Cat. 8) may have had a medical purpose. The smaller forceps head fragments (Cat. 9–12) had rather a cosmetic purpose. Three forceps arm fragments were also identified (Cat. 13–15), but they do not belong to the other fragments. One of them (Cat. 15) was used with certainty for cosmetic purposes, the length of another (Cat. 13) suggests that it might have been used for surgery. One is in very poor condition (Cat. 14), but a small cavity can also be seen on one side and it is significantly thicker than the other two (Cat. 13 and 15).

The spatulas were primarily used as dosing spoons, but they could also replace the probes,

⁹ FACSÁDY 2013, 32–34.

¹⁰ GIUNIO 2010, 26–27.

¹¹ ALICU–COCIŞ 1989, 225.

¹² IGNA 1936, 225–226, no. 15, 17, pl. X/15, 17.

¹³ ALICU–COCIŞ 1989, 225, 234, 231 pl. III/16; ALICU ET AL. 1994, 108, no. 718–722, pl. 38–39/718–722.

¹⁴ GUDEA–BAJUSZ 1992, 260–261, pl. VII/1–12.

¹⁵ ALICU–COCIŞ 1989, 226.

¹⁶ BAKER 2009, 3.

¹⁷ VARGA 2015, 184.

¹⁸ FACSÁDY 2013, 20–21.

¹⁹ FACSÁDY 2013, 36.

²⁰ FLUTUR–FLUTUR 2007, 75.

²¹ WELLER ET AL. 2016, 50, type 1.1.9.

²² WELLER ET AL. 2016, 49, type 1.1.5.

so they were common in both the doctor's and the average person's equipment.²³

The *spatomella* was a type of spatula-probe that had two different ends. With its egg-shaped end, powders were mixed in vessels or on palettes, making it the primary tool for mixing paints, ointments, medicines and even cauterising small wounds.²⁴ Its leaf-shaped end was used for dispensing, as well as for covering the nasal cavity to stop nosebleeds. *Spatomellae* were also used to examine the oral cavity and provided protection around the ribs during bone surgery. The length of these spatula-probes ranged from 6 to 15 centimetres on average, so they came in several sizes.²⁵

Another type of spatula were the spoons-probes, the *cyathiscomele*, which were similar to the aforementioned, but ended in a leaf-shaped form. These were used when medicine had to be measured and extracted from vessels. Their size also varied, as did the volume of medicine containers.²⁶

The spatulas and spatula-probes were mainly made of bronze, as evidenced by the

examples found at Ulpia Traiana Sarmizegetusa,²⁷ Apulum,²⁸ Porolissum,²⁹ or other sites in Dacia,³⁰ but in some cases bone was used as well.³¹

Of the objects from Călugăreni, six items belong to this category (Cat. 16–21) and all are made of copper alloy. They may have been used for mixing and dispensing pharmaceutical or cosmetic products. The first spatula is a fragment (Cat. 16.) with a square spoon and hollow handle. The second one (Cat. 17) is complete and has a flat rounded spoon, while the tip of the handle is pointed. The next one (Cat. 18) has a slightly curved spoon, while in the case of the almost complete one (Cat. 19) the handle is bent and the spoon is flat and angular and slightly recessed. Two unconnected fragments of another spatula with a leaf-shaped spoon and decorated handle (Cat. 20) are strongly corroded. A slightly curved spatula, with a square spoon (Cat. 21) is one of the better preserved.

The scientific name for the ear probe is *oricularium speculum* / *specillum oricularium*, although the Romans referred to it as *ligula*. Two types can be distinguished in this category:



Fig. 2. Digital reconstructions of the mirror (Cat. 24) from Pogor Hill (Made by Cloudscale Digital)

²³ SUCIU 2006, 245, 277.

²⁴ VARGA 2015, 184.

²⁵ BAKER 2009, 7.

²⁶ BAKER 2009, 8.

²⁷ ALICU-COCIȘ 1989, 224–225, 230–231, pl. II/7–11, III/12–15.

²⁸ IGNA 1936, 226, no. 6–11, pl. XI/6–11.

²⁹ GUDEA-BAJUSZ 1992, 264, no. 11–13, pl. 11–13.

³⁰ COCIȘ 1990, 241–249, no. 6–13, fig. 1/2–4, 6–7, 2/1–2, 7.

³¹ COCIȘ 1990, 242, 248, no. 14–17, 245, fig. 3/1, 3, 5, 4/3.

we can talk about ear probes ending in a flat head, as well as those with a circular end. Their handles are always thin and usually decorated; they are mainly made of copper alloy. The physician used the ear probe for examining and treating the ear; for example, parasites, foreign bodies in the ear were removed with a probe dipped in wax.³² Not only doctors, but also ordinary citizens had this type of item in their tool-kit, since it could be used for cleaning the inside of the ear.³³ Interestingly, one would think of a tool explicitly utilized for the ear, but in the case of other sensory organs, such as the eyes, it also proved useful when dripping medicinal fluid into the iris.³⁴ Such objects have also been found at Sarmizegetusa,³⁵ Apulum,³⁶ Porolissum³⁷ and other sites from Dacia.³⁸

The silver ear probe (Cat. 22) is special because of the state of conservation and its material, since in eastern Dacia everyday tools were rarely made of precious metals. The spoon of the ear probe is rounded, and we can observe a double horizontal groove decoration around its neck, in the Bajusz–Gudea typology it belongs to type SA2.³⁹

The origins of Roman mirrors (*speculum*) can be traced back to the Greeks and Etruscans, although its widespread use began during the early Roman Imperial period. Mirrors from this era were circular or oval and designed to be handheld, though it was not entirely uncommon to hang mirrors on walls. Handles and the back were often elaborately decorated, reflecting the artistic craftsmanship of the time, and most mirrors were crafted from metal, predominantly copper alloys or lead, although examples made from precious metals also existed.⁴⁰

K. Roth-Rubi classified Roman mirrors based on whether they feature handles or not,⁴¹

and G. Lloyd-Morgan developed a more complex typology that is still in use.⁴²

Our mirror fragments (Cat. 23–24) were decorated on the lathe, and were made of tinned bronze.⁴³ The decoration of concentric circles indicates that the mirror had a disk shape, but the size of the fragment makes it impossible to determine whether it had a handle or how it was attached to the disk. Based on the decoration, we can presume that it belongs to Riha version C or D⁴⁴ and the Lloyd-Morgan type G.⁴⁵

As far as razors (*novaculum*) are concerned, J. Garbsch⁴⁶ and E. Riha⁴⁷ thought that short-handled knives measuring 11–18 centimetres could also have been razors, G. C. Boon contradicts their theory, stating that Roman razors were rather wide and did not have sharp blades. These knives, which appear in written sources under the name *cultellus tonsorius* (barber's small knife), were nail-cutting tools, as there is no mention of nail scissors.⁴⁸

We have iconographic sources that provide a realistic appearance of razors, but several types can be distinguished in the archaeological material. The triangular razor was most popular during the reign of the Julio-Claudian dynasty; the framed razor was mainly used later and its defining features were the zoomorphic figures at the end of the handle. There were also folding razors with a trapezoidal shape and wide blades; several of these have been found in good condition in Pompeii, where they must have been highly popular. There are also the so-called dolphin razors, named after their shape. Boon also mentions spatulas resembling trapezoidal razors, but these were used to spread wax on tablets that were later used for writing.⁴⁹

³² BAKER 2009, 7.

³³ VARGA 2015, 184.

³⁴ ALICU–COCIȘ 1989, 224.

³⁵ ALICU–COCIȘ 1989, 227, no. 2–6, 229, pl. I/2–6.

³⁶ IGNA 1936, 225, no. 2–5, pl. X/2–5.

³⁷ GUDEA–BAJUSZ 1992, 261, no. 1–6, 282, pl. VIII/1–7.

³⁸ COCIȘ 1990, 241–242, no. 2–5, 243–245, fig. 1/5, 2/5–6, 3/4.

³⁹ GUDEA–BAJUSZ 1992, 274, fig. 5/SA2.

⁴⁰ ALICU ET AL. 1994, 55.

⁴¹ ROTH-RUBI 1977, 31–41.

⁴² LLOYD-MORGAN 1977.

⁴³ The analysis was made with XRF in the archaeometry laboratory of the Transylvanian Museum Society from Cluj Napoca in the framework of the External Research Programs.

⁴⁴ RIHA 1986, 13–15, 117–118, Taf. 2/7–12, Taf. 3/21–24.

⁴⁵ For parallels concerning this type of decorations, see examples from Ulpia Traiana Sarmizegetusa: ALICU ET AL. 1994, 56, 110, no. 742, pl. 42/742.

⁴⁶ GARBSCH 1975, 69–73.

⁴⁷ RIHA 1986, 28–30.

⁴⁸ BOON 1991, 21–23.

⁴⁹ BOON 1991, 24–32.

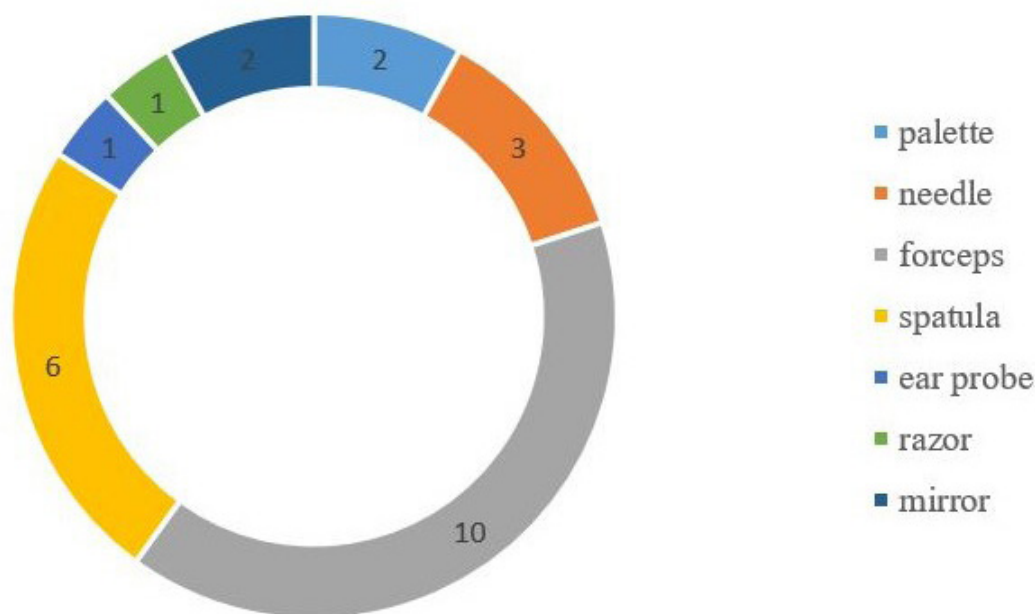


Fig. 3. Functionality of the analysed material.

Our razor (Cat. 25) is of the trapezoidal type. Because it was found in the *vicus*, it is conceivable that it belonged to one of the veterans or civilians living there.

In our material (Fig. 3) we have two palettes made of stone, three needles (one made of iron and two of bronze), ten bronze forceps / tweezers, six bronze spatulas, one silver ear probe, one bronze razor and two tinned bronze mirror fragments. The majority of these objects are quite fragmentary and not so well preserved, they have a simple decoration and are made of accessible materials. As an exception, we shall mention the silver ear probe (Cat. 22) and the two tinned mirror fragments (Cat. 23–24), which were also decorated.

Due to their size and the fact that most of the artefacts were found scattered all around the site, we can conclude that they served most probably a cosmetic purpose. However, the possibility that some of them were also used for medical purposes, can't be completely ruled out, considering the fact that the majority were recovered from the auxiliary fort, where the preservation of bodily integrity and health would undoubtedly have been important. Even if they were discovered in the fort, it is difficult to ascertain that a particular artefact really belonged to a surgeon or doctor and was used

for medical purposes, unless it is part of a set, or comes from a clear context.⁵⁰

CATALOGUE⁵¹

1. Cosmetic palette (Pl. I/1).

Limestone slate; corner fragment of a cosmetic palette with finely profiled edges; conserved.

L = 58.20 mm; W = 33.23 mm; T = 8.34 mm; L upper surface = 31.02 mm; Wt = 16.25 g.

CAL 2013; A *principia*; Cx. 003; Sf. 321; Inv. 15632.

2. Cosmetic palette (Pl. I/2).

Limestone slate; fragment of a cosmetic palette with finely profiled edges; conserved.

L = 60.39 mm; W = 73.02 mm; T = 7.50 mm; L upper surface = 50.10 mm; W upper surface = 56.68 mm; Wt = 65.30 g.

⁵⁰ JACKSON 2003, 312–313.

⁵¹ The following datasets and abbreviations have been used: catalogue number; object name; illustration; material; description; state of conservation; dimensions (L = length, W = Width; T = Thickness; D = diameter; Wt = weight); site code, excavation area; Cx. = context number; Sf. = small find number; Inv. = inventory number. The artefacts belong to the Archaeological collection of the Mureş County Museum.

CAL 2015; A3 *principia*; Cx. 114; Sf. 10125; Inv. 15633.

3. Bronze needle (Pl. I/3).

Copper alloy; fragment of a needle with round eye, flattened head, tapering towards the tip; conserved.

L = 62.03 mm; D = 2.39 mm; Wt = 0.79 g.

CAL 2015; A3 *principia*; Cx. 113; Sf. 958; Inv. 14539.

4. Bronze needle (Pl. I/4).

Copper alloy; fragment of a slightly curved needle tip, tapering towards the tip; conserved.

L = 16.90 mm; D = 2.09 mm; G = 0.04 g.

CAL 2015; A1 *principia*; Cx. 127; Sf. 10170; Inv. 17236.

5. Iron needle (Pl. I/5).

Iron; fragment of a needle tip, tapering towards the tip; conserved.

L = 16.14 mm; D = 1.09 mm; Wt = 0.02 g.

CAL 2015; A1 *principia*; Cx. 108; Sf. 10143; Inv. 15797.

6. Bronze forceps (Pl. I/6).

Copper alloy; complete double-armed forceps with slightly curved handles, omega-shaped head; conserved.

L = 72.77 mm; W = 10.55 mm; T = 6.50 mm; Wt = 8.10 g.

CAL 2014; C2 *vicus*; Cx. 2039; Sf. 4003a; Inv. 14593.

7. Bronze forceps (Pl. I/7).

Copper alloy; 2 fragments of a double-armed forceps, omega-shaped head; not restored.

L1 = 31.78 mm; W1 = 8.20 mm; T1 = 8 mm; L2 = 33.77 mm; W2 = 3.20 mm; T2 = 8 mm; Wt = 5 g.

CAL 2021; *vicus*; *passim*; Inv. 17243.

8. Bronze forceps (Pl. I/8).

Copper alloy; fragment of a double-armed forceps, omega-shaped head; not restored.

L = 29.10 mm; W = 14.55 mm; T = 8.2 mm; Wt = 2.94 g.

ERC 2018; AIII/80 CM10–11 *vicus*; Cx. 270; Sf. 448; Inv. 15533.

9. Bronze forceps (Pl. I/9).

Copper alloy; fragment of a double-armed forceps, omega-shaped head; not restored.

L = 21.21 mm; W = 7.16 mm; T = 7.32 mm; Wt = 0.76 g.

ERC 2018; AIII/80 CM/1–12 *vicus*; *passim*; Sf. 417; Inv. 15530.

10. Bronze forceps (Pl. I/10).

Copper alloy; fragment of a double-armed forceps, omega-shaped head; not restored.

L = 14.2 mm; W = 8.2 mm; T = 3.4 mm; Wt = 0.37 g.

CAL 2021; A8 *principia*; Cx. 649; Sf. 12143; Inv. 17242.

11. Bronze forceps (Pl. I/11).

Copper alloy; fragment of a double-armed forceps, omega-shaped head; not restored.

L = 15.15 mm; W = 5.65 mm; T = 3.82 mm; Wt = 0.45 g.

CAL 2023; A/2023 *principia*; Cx. 868; Sf. 13469; Inv. 17237.

12. Bronze forceps (Pl. I/12).

Copper alloy; fragment of a double-armed forceps, omega-shaped head; not restored.

L = 11.67 mm; W = 7.02 mm; T = 3.72 mm; Wt = 0.35 g.

CAL 2023; A/2023 *principia*; Cx. 865; Sf. 13514; Inv. 17238.

13. Bronze forceps (Pl. I/13).

Copper alloy; fragment of the slightly curved forceps arm; not restored.

L = 76.6 mm; W = 3.96 mm; T = 2.05 mm; Wt = 1.5 g.

ERC 2018; AIII/80 CM/10–11 *vicus*; Cx. 270; Sf. 456a; Inv. 15534.

14. Bronze forceps (Pl. I/14).

Copper alloy; fragment of the slightly curved hollow forceps arm (?); not restored.

L = 39.36 mm; W = 4.45 mm; T = 1.86 mm; Wt = 3 g.

CAL 2014; C2 *vicus*; Cx. 2039; Sf. 4003c; Inv. 14593.

15. Bronze forceps (Pl. I/15).

Copper alloy; fragment of the slightly curved forceps arm; not restored.

L = 39.36 mm; W = 4.45 mm; T = 1.86 mm; Wt = 0.94 g.

CAL 2022; A/2022 *principia*; Cx. 767; Sf. 13157; Inv. 17239.

16. Bronze spatula (Pl. II/16).

Copper alloy; fragment of the slightly curved spatula handle with partly preserved spoon; conserved.

L = 21.07 mm; W = 4.16 mm; D = 2.03 mm; Wt = 0.83 g.

CAL 2014; A *principia*; Cx. 67; Sf. 824; Inv. 15780.

17. Bronze spatula (Pl. II/17).

Copper alloy; completely preserved curved spatula with rounded spoon; conserved.

L = 36.02 mm; W = 9.29 mm; T = 2.19 mm; Wt = 2.47 g.

CAL 2015; A1 *principia*; Cx. 108; Sf. 940; Inv. 14552.

18. Bronze spatula/*specillum* (Pl. II/18).

Copper alloy; fragment of a slightly curved spatula or *specillum* handle; conserved.

L = 60.58 mm; W = 3.39 mm; D = 3.30 mm; Wt = 2 g.

CAL 2015; C3 *vicus*; Cx. 2082; Sf. 5102; Inv. 14563.

19. Bronze spatula (Pl. II/19).

Copper alloy; fragment of a spatula with a bent handle and a flat rectangular-shaped spoon; conserved.

L = 63.48 mm; W = 5.17 mm; D = 2.85 mm; Wt = 1.55 g.

CAL 2015; A2 *principia*; Cx. 121; Sf. 10282; Inv. 14537.

20. Bronze spatula (Pl. II/20).

Copper alloy; 2 fragments of a spatula with a flat oval spoon, cylindrical handle decorated with two strongly corroded horizontal grooves; conserved.

L1 = 34.29 mm; D1 = 3.31 mm; L2 = 22.04 mm; W2 = 4.27 mm; D2 = 1.60 mm; Wt = 1.81 g.

CAL 2017; A7 *principia*; Cx. 404; Sf. 10848; Inv. 17241.

21. Bronze probe (Pl. II/21).

Copper alloy; fragment of a flat-headed probe; conserved.

L = 63.45 mm; D = 3.26 mm; W = 5.77 mm; Wt = 1.36 g.

CAL 2014; C1 *vicus*; Cx. 2035; Sf. 2158; Inv. 14599.

22. Silver ear-probe (Pl. II/22).

Silver alloy; completely preserved ear-probe with a flat circular spoon, curved cylindrical handle decorated with a double horizontal groove; conserved.

L = 73.91 mm; W = 3.38 mm; D = 3.06 mm; Wt = 3.41 g.

CAL 2016; C3–C5 *vicus*; *passim*; Sf. 5960; Inv. 15729.

23. Tinned bronze mirror (Pl. II/23).

Bronze alloy with tin; rim fragment of a polished mirror with three incised concentric grooves on the back; not restored.

L = 18.92 mm; D = 114 mm; W = 15.45 mm; T = 2.26 mm; Wt = 2.7 g.

CAL 2022; A/2022 *principia*; Cx. 771; Sf. 13151; Inv. 17240.

24. Tinned bronze mirror (Pl. II/24, digital reconstruction Fig. 2).

Bronze alloy with tin; rim fragment of a polished mirror with an incised circle on the front and an incised geometric decoration on the back; conserved.

L = 17.85 mm; D = 100 mm; W = 17.64 mm; T = 1.18 mm; Wt = 1.51 g.

Pogor watchtower; fieldwalking; PSf. 65; Inv. 15657.

25. Bronze razor (Pl. I/25).

Copper alloy; fragment of the slightly curved razor blade, the handle was fixed to the grip with two rivets, from which one is preserved; conserved.

L = 79.13 mm; W = 23.98 mm; T = 2.9 mm; Wt = 18.43 g.

CAL 2014; C2 *vicus*; Cx. 2039; Sf. 4003b; Inv. 14593.

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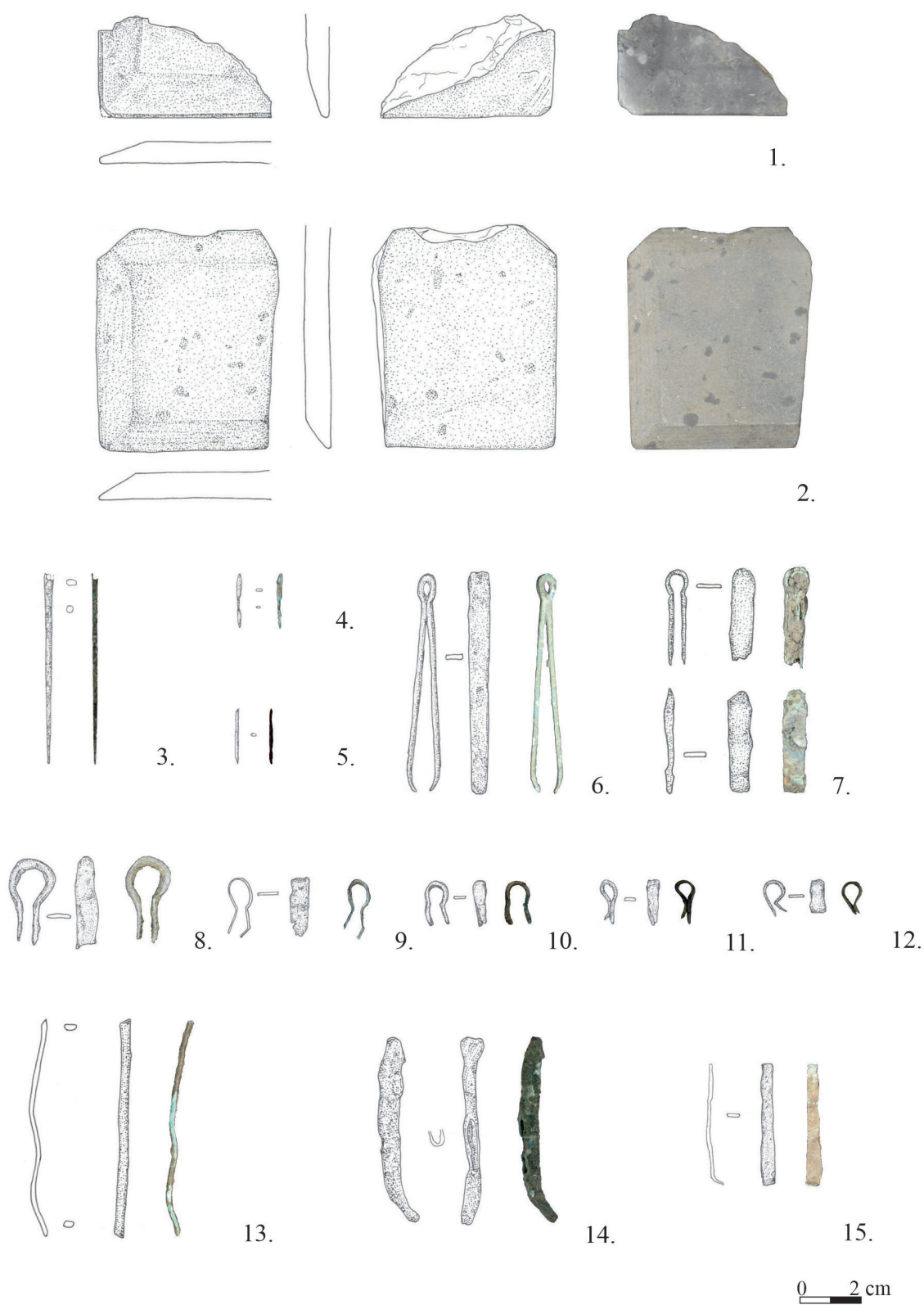
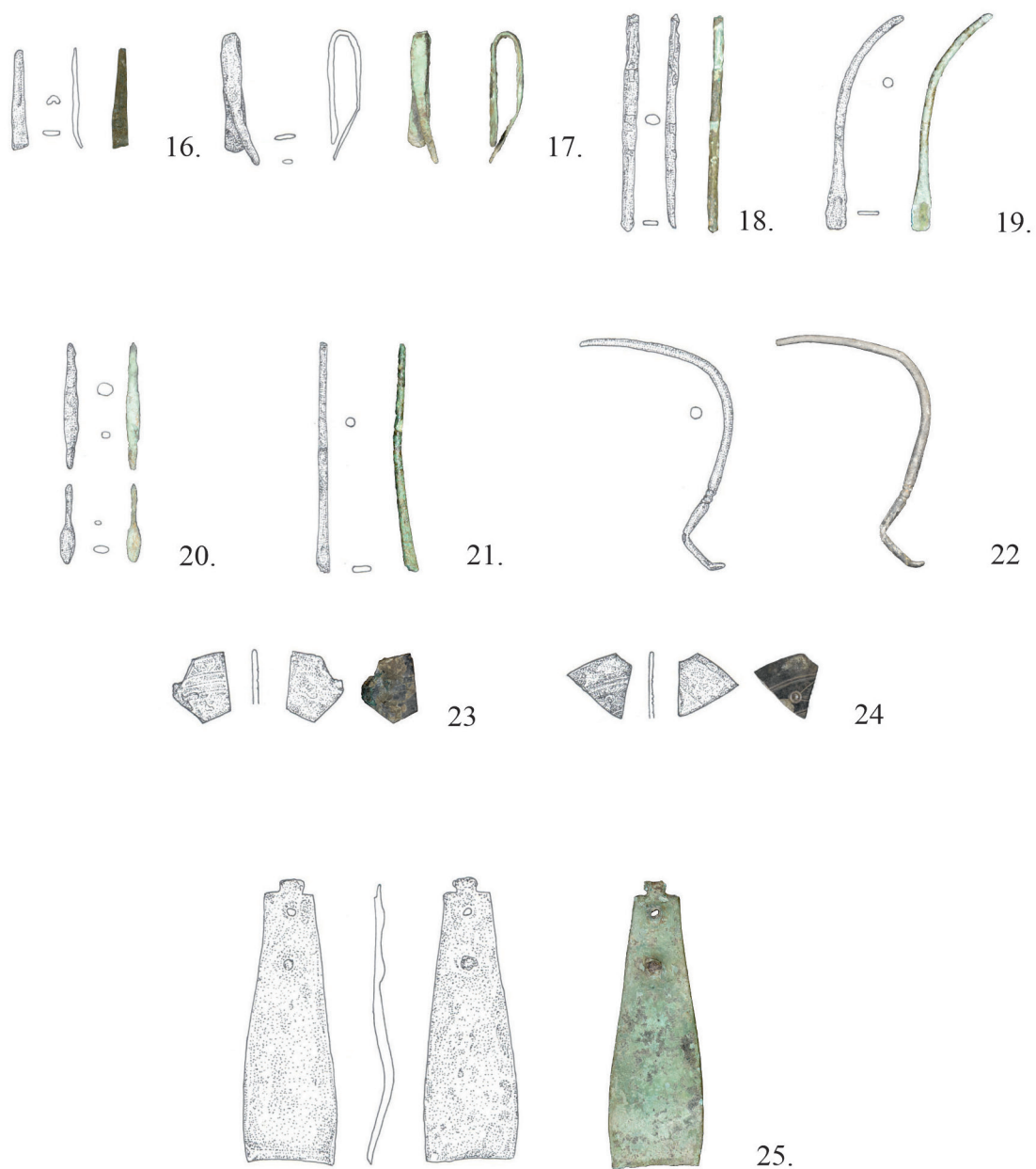


Plate I. Cat. 1-15.



0 2 cm

Plate II. Cat. 16–25.

ROMAN ARROWS FROM CĂLUGĂRENI / MIKHÁZA: A TYPOLOGICAL APPROACH

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The recent excavations in Călugăreni / Mikháza (Mureș County, Romania) have revealed one of the most notable categories of militaria related to the oriental archers stationed here, namely the iron arrowheads. Beside the discovery of bow ear-lath fragments, bone arrow nocks attest the intensive use of composite bows at this Roman military site.

Keywords: arrowheads, bone nock, composite bow, auxiliary unit, Orient

Cuvinte-cheie: vârfuri de săgeată, nock din os, arcuri compozite, unități auxiliare, Orient

Călugăreni / Mikháza,¹ located in Mureș / Maros County, Romania, is one of the major Roman military sites in Eastern Transylvania, situated in the south-western part of the modern village. It extends along the left bank of the Niraj / Nyárád River, benefiting from the natural defence provided by the Gurghiu / Görgényi Mountains and the hills of the Subcarpații Târnavei Mici / Sóvidéki dombság. Along with a series of watchtowers and other defensive structures located to the east, it was tasked with

controlling the Roman border section around the upper Niraj Valley and the Săcădat / Szakadát Valley, where the presumed ancient traffic routes to the *Barbaricum* passed through.

The Roman occupation of the site is limited to approx. 150 years and began most likely under Trajan or Hadrian and ended around the middle of the 3rd century. Based on data collected through intensive fieldwalking, geophysical surveys, and recent rescue excavations, we can confirm that the nearly 2.3 ha auxiliary fort was surrounded by an approximately 20 ha military *vicus*.

The main components of the site (Fig. 1): the auxiliary fort (Area A, Area D), the *balneum* (area B) and the surrounding military *vicus* (Area C, Area ERC 2018) have been systematically investigated in 2004 and since 2011 in the framework of research excavations and rescue excavations (ERA, ERC, CAP, CAB projects).

The *cohors I Augusta Ituraeorum* was stationed in the fort,² mentioned in the military diplomas for Dacia superior between 124 and 179 AD, and occasionally listed as a *sagittaria*

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¹ Due to various interconnected projects focusing on the research, conservation, and presentation of the sites along the eastern border of Roman Dacia, aerial archaeological, geophysical, architectural, and topographical surveys, as well as rescue and research excavations, have been undertaken at Călugăreni since 2004. We would like to thank our colleagues who participated in the field researches and in the restoration process of the finds, especially Éva-Eunika Vajna, Koppány-Bulcsú Ötvös, Márton Ferenczi and Krisztina Csibi for their help with the illustrations. For an overview concerning the state of research at Călugăreni, see: SZILÁGYI-PÁNCZÉL 2023, 45–46 and papers published since: KOVÁCS 2023; BÁLINT-PÁNCZÉL 2024; MATEI-POPESCU-PÁNCZÉL 2024.

² PISO-MARCU 2008; ȚENȚEA 2012b, 52–60; MATEI-POPESCU 2014, 207; SIDÓ-ÖTVÖS 2015; MATEI-POPESCU-ȚENȚEA 2016, 10.

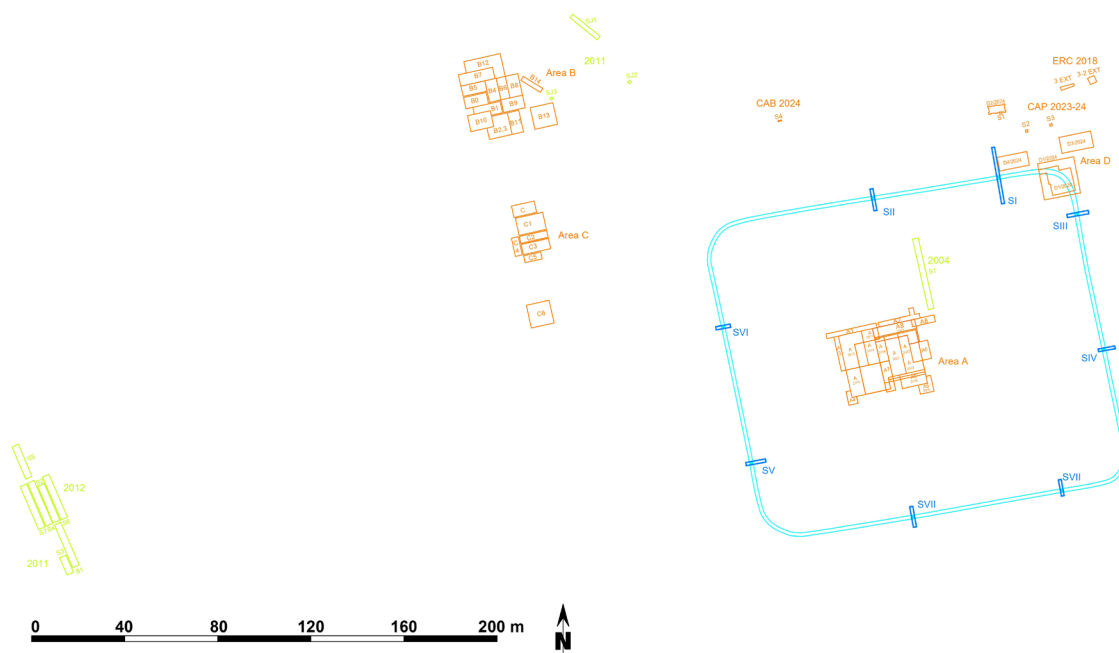


Fig. 1. The excavations until 2024 (auxiliary fort in turquoise): 1961 excavations in blue; 2004, 2011–2012 excavations in green; 2013–2024 excavations in orange (Made by P. Simon and Sz. P. Pánczél).

unit.³ Beside the epigraphic evidence, the archaeological material supports the idea that a unit of oriental archers was garrisoned here.

From a chronological perspective, it is essential to emphasise that Călugăreni has suffered extensive damage due to modern interventions, including looting and agricultural activities conducted in the area over the past centuries. As a result, the stratigraphic layers corresponding to the latest Roman occupation phases are only partially preserved and can be documented to a limited degree. The majority of the documented demolition and destruction layers appear to be the result of re-deposition of original contexts in modern times. Since all the artefacts discussed below originate from these layers, or layers related to the last occupation layers, it is not possible to assign them to a strict chronological sequence. However, with caution, they can be tentatively dated to the final significant period of Roman habitation at the site, the late 2nd and first half of the 3rd century AD.

THE BOW EAR-LATH FRAGMENTS AND ARROW NOCKS⁴

The large number of bone and antler artefacts from Roman sites in Dacia reveals an organised and standardised mass production, although the study of bone working remains a relatively neglected field in archaeological research.⁵ Worked bone objects are typically found at most major Roman sites, and evidence of bone-working workshops has been published in many cases.⁶

⁴ The following typological abbreviations will be used: Gudea = GUDEA 2006, 412, Fig. 8; Vass = VASS 2014, 103–104; Zanier = ZANIER 1988, 6, Abb. 1.

⁵ VASS 2010, 55–56.

⁶ Evidence of bone-working workshops has been identified at: Pojejena / Alsópozsgás, Drobeta, Praetorium, Tibiscum, Ulpia Traiana Sarmizegetusa, Micia, Apulum, Potaissa, Napoca, Bucium / Vármező, Certiae, Porolissum, Arcobadara, Cristești / Maroskeresztúr, Călugăreni / Mikháza, Cumidava, Feldioara / Barcafdvár, Răcari, Romula, Sucidava, Gârla Mare. For evidence of local bone working workshops, see: TIMOC 2007; TIMOC 2008; VASS 2010. For evidence published since then, see: BĂEȘTEAN-BARBU 2010 for Ulpia Traiana Sarmizegetusa, BONDOC-GUDEA 2009, 275–276, nr. 1088, 1097, 453–454, pl. 154/1088, 155/1097 for Răcari. For Călugăreni, see below.

³ ȚENȚEA 2012b, 55.

At Călugăreni, evidence for the presence of bone working workshops has been published from the *insula* in the north-western part of the *vicus* (Area C), the *balneum* (Area B) and the *principia* (Area A) of the military fort.⁷ An analysis of the bone artefacts indicates that the abundant food remains of the most frequently consumed domestic species at the site also served as a source of raw materials for the workshops. Moreover, given the region's extensive forests, the procurement of antler would not have presented a significant challenge. Whether by hunting or collecting shed antlers, the artisan would have had ample resources to meet the workshop's needs.⁸

In the heavily militarised province of Roman Dacia, the primary consumers of bone and antler artisanal products were members of the army, despite some workshops being located in civilian settlements.⁹ The diversity of certain categories of bone *militaria* suggests a relationship with the requirements of the army; however, none provide evidence as compelling as the components of composite bows, despite the possibility that some of these items were also used by civilians.¹⁰

Based on the material and the production technique, bows used in antiquity can be classified into three main categories: a) simple bows, made of a single wood; b) bows reinforced with sinew to prevent them from breaking; c) composite or reflex bows that combine layers of horn, wood and sinew. The composite bows provided superior penetration power by transferring potential energy to the arrow more efficiently, and increased accuracy and fluidity of action, since the place where the bow was held remained rigid during the shooting.¹¹

Although the Roman Empire's military strategy was based on the heavy infantry of the legions, the Romans had to adapt to the new enemies who had various combat tactics. Starting from the time of the Principate, they

introduced *sagittarii* units, indicated by their distinctive weapon. Beside their weapon of choice, the troops also retained their native garments and fighting style. In order to maximise the advantages of archers, mounted archers joined the pedestrian ones within the light cavalry. The archers were recruited mainly from areas of the Empire, which were known for their tradition of bow production and use, and during the 2nd and 3rd centuries the vast majority were recruited from Syria and Arabia. The mounted or pedestrian archers from the East, who afforded an expensive composite bow were part of the social elite. The archers originating from the western provinces came from the less prosperous social categories, were not equipped with highly efficient bows and were not extensively trained in archery.¹²

The only elements of composite bows that have been preserved at Roman sites are the bow laths or reinforcements, made of antler or bone. The ear-lath was used to reinforce the ears of composite bows made of an elongated straight or curved blade-like body, usually rounded, angular or square at the terminal and with a plano-convex section. The face is concave or flat and the back is roughened for a more effective gluing. The nock for the string varies from rounded to rectangular or U-shaped, and was cut close to the terminal. The central laths, which stiffen the grip, seem quite similar, but are usually flat and straight, or chopped at the edges.¹³ The size and shape of reinforcing laths depends on the size of the bow, hence the long, wide and less curved ones were used for the larger bows of the pedestrians, while the smaller and more curved ones were employed by horse archers.¹⁴ In the case of a composite bow, seven laths were used for stiffening it, a set of two ear-laths were mounted on the two tips, and three were attached to the grip.¹⁵

From the Dacian provinces, there is evidence from several sites for the use, and in some cases

⁷ PÁNCZÉL-LUKÁCSI 2019, 420–422.

⁸ VASS 2010, 57.

⁹ For military workshops in Dacia, see: BENEÁ 2008.

¹⁰ PETCULESCU 2002, 766–767.

¹¹ URECHE 2013, 183–184.

¹² TENTEA 2012a, 102–104; URECHE 2015, 10.

¹³ MACGREGOR 1985, 155–158; VASS 2014, 99.

¹⁴ URECHE 2013, 186.

¹⁵ URECHE 2013, 185; VASS 2014, 100.

the production of composite bows, in the shape of bone ear and grip laths.¹⁶

Tibiscum represented a key position in the defence of the south-western border of the province. In the auxiliary fort and the *vicus*, a grip lath¹⁷ and four ear lath fragments¹⁸ have been identified. Debris and half-finished objects are strong evidence for the presence of local bone working workshops, in which composite bow implements were produced as well.¹⁹

In a building of the auxiliary fort of Micia, which existed between 106–170 AD, a total of 35 fragmentary ear laths made of antler have been discovered.²⁰ Beside these, two grip lath fragments,²¹ unfinished objects and debris testify to the existence of a bone workshop with an intensive production period.²²

Porolissum is considered the “cornerstone” of the defensive system of north-western Dacia. From the auxiliary fort on the Pomiet Hill, the amphitheatre and the military *vicus*, 51 antler bow lath fragments have been published. Among the bone manufacturing debris from the weapon workshop in the fort, different semi-finished ear and grip lath fragments have been recovered. Based on the finds’ distribution, there is no doubt that we have to reckon with several bone working and composite bow production workshops at this site.²³

Also on the north-western border sector of the province, in the auxiliary fort from Certia, an ear lath fragment²⁴ was discovered, but apart from the presence of 47 bone hairpins from the bathhouse, no clear evidence of a possible local bone workshop has been established yet.

From Cristești, an ear lath fragment was

published.²⁵ From this site, we have some evidence for bone working as well,²⁶ so we can presume that among other artefacts, composite bows could have been produced.

In the auxiliary fort from Urluieni, located on the *limes transalutanius*, an ear lath fragment²⁷ was discovered.

From the *canabae* of the legionary fortress of Apulum, three ear-lath fragments are known.²⁸ Even if their presence does not necessarily have to be linked to the army or the veterans, based on the plenitude of bone working workshops,²⁹ we can presume that they were made locally.

From Călugăreni we have three bow ear-lath fragments, one with a U-shaped nock (Cat. 1),³⁰ one with a rounded nock (Cat. 2)³¹ and an unfinished ear lath fragment (Cat. 3), which was probably damaged during the production process, so the nock was not finished. We shall not exclude the possibility that this might be a grip lath fragment,³² even though its shape and finish are not typical of such implements.

All our ear-lath fragments are made of antler and belong to the straight massive types used for larger infantry bows.³³ Only one is from the bath, the other two have been discovered in the fort, so we can conclude, that there is enough evidence that the bone working workshop from the military fort was producing composite bow implements for the military workshops.

Bone arrow nocks, which attest a clear oriental influence, have a cylindrical body, sometimes decorated with grooves, ribs and mouldings, and have a notch at the bottom for the bowstring, and a narrow tang at the top, which was inserted into the reed shaft of the arrow. These nocks had the role of preventing the arrows from splitting under the pressure

¹⁶ See the summaries of: PETCULESCU 2002, 765–766; DINULESCU 2010, 148–150; ȚENȚEA 2012A, 106–108; VASS 2014, 100–101.

¹⁷ BONA ET AL. 1983, 417, no. 1, 431, pl. XI/1.

¹⁸ BENE 1983, Fig. II/2; BONA ET AL. 1983, 418, no. 4–5, 431, Pl. XI/2, 11; PETRESCU–ROGOZEA 1990, 117, no. 2, pl. XI/5.

¹⁹ BENE 2003.

²⁰ PETCULESCU 2002, 765, 768–769, fig. 1–3/1–35.

²¹ PETCULESCU 2002, 765, 769, fig. 3/36–37.

²² PETCULESCU 2002, 765, 769, fig. 3–4/38–52.

²³ VASS 2014.

²⁴ MATEI–BAJUSZ 1997, 129, 226, Pl. LXXXII/1.

²⁵ PETICĂ–ZRINYI 2000, 127, no. 41, 134, pl. V/7; MAN 2011, 235, no. 38, 447, pl. CLXIX/38.

²⁶ PETICĂ–ZRINYI 2000, 124–125, no. 12–17, 131, pl. II/4–9; MAN 2011, 232–233, no. 12–17, 444, pl. CLXVI/12–17.

²⁷ BOGDAN–CĂTĂNICIU 1994, 348, fig. 14/a.

²⁸ CIUGUDEAN 1997, 37–38, 77 no. 459–461, 180, pl. XXX/2–4.

²⁹ VASS 2010, 60–61.

³⁰ Vass type 1a.

³¹ Vass type 1b.

³² Vass type 3.

³³ URECHE 2013, 186.

of the bowstring.³⁴ Beside ours, a total of five items are known from Dacia, three from Tibiscum³⁵ and two from Micia.³⁶ Except for the nock from Micia,³⁷ which is quite simple and has a V-shaped notch quite similar to ours (Cat. 4–6), all the others are more elaborate and have a U-shaped notch. Recently, it has been pointed out, that beside aesthetic aspects, the grooves from the grip facilitated a better grasp of the arrow.³⁸ This may have been the intention in the case of the one nock with an extra horizontal groove (Cat. 7).

All the nocks have been recovered from the *principia*, their findspot and the morphological elements suggest that they might come from the same workshop in the fort, but not necessarily from the same artisan, which might explain the slight differences.

From the size of the notch the diameter of the bowstring can be estimated as well, which might be thicker in the case of the first three (Cat. 4–6) and slightly thinner in the case of the most elaborate one (Cat. 7).

Of the sites mentioned above, the presence of units recruited in the Orient has been confirmed in the case of Tibiscum, Micia, Porolissum, Certiae, Cristești and is presumed in the case of Urluieni. If we look at the same sites, it is not surprising that bone nocks, iron or even bone arrowheads³⁹ have been discovered at these sites as well. Based on this, linking the presence of composite bow implements and bone nocks to oriental archer units can be done with a certain degree of certitude.

THE ARROWHEADS

Arrowheads are quite frequent finds at Roman military sites, but usually only a small amount is published.⁴⁰ In most of the cases the research

focuses on a few distinctive pieces and ignores the quantitative features, the analysis concentrates on the typological and chronological datasets, without examining the archaeological context.

Since 2013 more than 350 arrowheads⁴¹ have been discovered in the auxiliary fort, the *balneum* and the military *vicus* in Călugăreni, but due to their state of conservation not all of them can be classified typologically without conservation treatment.

A total of 112 arrowheads discovered in the fort and the *vicus* will be analysed in this paper, divided into two main categories according to the mounting method (Fig. 2). In the case of the tang method (Fig. 2/A), the metal pin of the arrowhead is inserted into a wooden shaft. 107 pieces belong to this category. The other method, represented by only 5 pieces, is the one with a socket, where the wooden shaft fits into the metal tube (Fig. 2/B).

Based on morphology, we can differentiate three main categories: trilobate, bodkin and flat bladed arrowheads, all of them listed in the typology created by N. Gudea for the finds from Porolissum (Fig. 3),⁴² where he also differentiates them based on the mounting method (SAA are the socketed ones and SAB the tanged).

Even though the trilobate arrowheads appear in Gudea's typology, we have used the one created by W. Zanier, because it allows a more detailed analysis (Fig. 4).⁴³ Of the four types of Zanier, only three are represented in our material. The

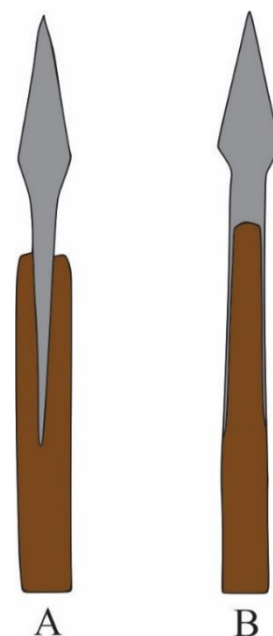


Fig. 2. Mounting method for tanged (A) or socketed (B) arrowheads.

³⁴ PETCULESCU 2002, 766.

³⁵ BONA ET AL. 1983, 418, no. 6–8, 431, Pl. XI/4–6; PETCULESCU 2002, 766, 770, fig. 5/66–68; BENEÁ 2003, 226, Taf. VII/1, 12.

³⁶ PETCULESCU 2002, 766, 770, fig. 5/64–65.

³⁷ PETCULESCU 2002, 766, 770, fig. 5/64.

³⁸ RIESCH 2017, 143.

³⁹ VASS 2010, 58, fig. 8.

⁴⁰ PETCULESCU 2002, 766.

⁴¹ Their state of preservation does not allow us to integrate all of them into our analysis.

⁴² GUDEA 2006, 397–398, 408, 412, fig. 8; GUDEA 2008, 205–207, Abb. 8.

⁴³ ZANIER 1988, 6, Abb. 1.

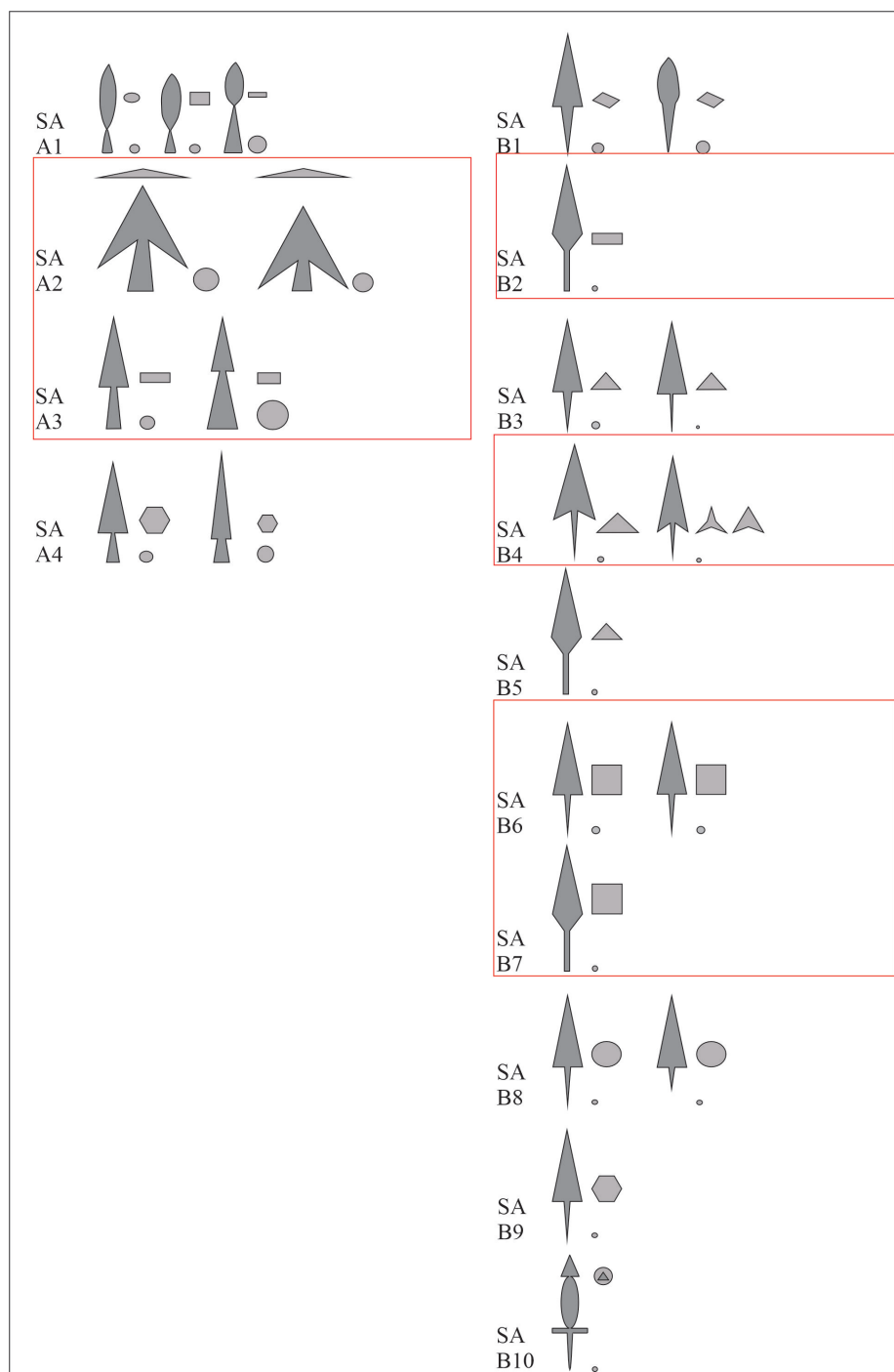


Fig. 3. The adapted Gudea typology (GUDEA 2006, 412, fig. 8). We have marked with red squares the types identified in Călugăreni.

major difference between the types is the angle between the lower part of the arrowhead and the tang. In the case of type Zanier 1 this angle is acute, in Zanier 2 it is right and in Zanier 3 it is obtuse.

Of the arrowheads analysed, 72 are trilobates, 35 bodkins and 5 flat bladed socketed arrowheads.

Typologically, the trilobate arrowheads can be divided into three subtypes: 7 belong to Zanier 1 (Cat. 8–14), 39 to Zanier 2 (Cat. 15–53) and 25 to Zanier 3 (Cat. 54–78). In the case of one arrowhead (Cat. 79), the exact type cannot be determined due to poor preservation.

The dimensions and the weight can hint towards the possible functionality. The Zanier

1 type weighs between 1.2–7.5 g, the Zanier 2 between 1.6–5.7 g, the Zanier 3 between 1.5–8.1 g, and the undetermined piece weighs 3.2 g. The length of the arrowheads, including the tang, is between 3.6–6.5 cm for the Zanier 1 type, 2.2–6.9 cm for the Zanier 2 type, 2.6–7.6 cm for the Zanier 3 type and 3.8 cm for the undetermined piece. Based on the maximum weight and length established by N. Gudea for the light arrowheads (without specifying whether the length includes the tang or not), all our trilobate arrowheads can be included in the category of light arrowheads.⁴⁴

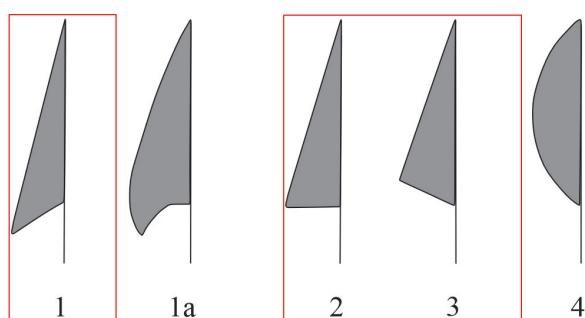


Fig. 4. The adapted Zanier typology of the trilobate arrowheads (ZANIER 1988, 6, Abb. 1). We have marked with red squares the types identified in Călugăreni.

The origin of this type of trilobate arrow can be in the East, where this type was used in the area of Mesopotamia, Syria, Palestine, Egypt, Asia Minor and the Caucasus as early as the 8th century BC. Thanks to the Scythians, it also reached the Greeks, from where it was gradually adopted by the Romans.⁴⁵ Pieces similar to ours, made of iron and with a glove fastener shaft, began to appear from the 2nd century BC.⁴⁶ However, the popularity of this type can be observed until the late Roman period.⁴⁷ Although this piece has its origins in the Orient, it cannot be considered characteristic of the

oriental units, because this type of arrowhead is found throughout the Empire,⁴⁸ becoming the most common type in the Roman military, with a wide range of analogies.⁴⁹ Examples are also known from Dacia at Porolissum,⁵⁰ Micia,⁵¹ Jidava,⁵² Tibiscum⁵³ and Urluieni.⁵⁴

From a quantitative point of view, the next group of arrowheads are of the bodkin type, with a quadrangular section, classified in three categories in the typology of N. Gudea: SAB2, SAB6 and SAB7.

The SAB2 type is represented by 3 pieces (Cat. 80–82), the SAB6 by 10 pieces (Cat. 83–92), the SAB7 by 19 pieces (Cat. 93–111), and in the case of three arrowheads (Cat. 112–114), the exact type could not be determined because of the bad state of preservation.

The weight of the bodkin arrowheads varies between 0.6–9.9 g. The SAB2 type weighs between 1.6 and 6 g, the SAB6 between 1.3 and 4.7 g, the SAB7 between 0.6 and 9.9 g and the undetermined pieces weigh between 2.5–7.8 g. The length of the arrowheads, including the tang, varies between 2.8–4.9 cm for the SAB2 type, 2.3–6.5 cm for the SAB6 type, 2.3–8.6 cm for the SAB7 type, and the undetermined pieces are 3.9–4 cm long. Based on these characteristics, all our bodkin arrowheads can be included in the light arrowhead category.

The function of this type may have been piercing the armour of the enemy.⁵⁵ The origin of this type dates back to the 2nd century BC, a period when the Romans had already encountered Orientals.⁵⁶ The version with socket was used in Asia Minor, Cyprus, Mesopotamia,

⁴⁴ The maximum weight is 10 g and the maximum length ± 5 –6 cm (GUDEA 2006, 397; GUDEA 2008, 205). The exact length is not clear in these two papers, but in our interpretation this length can be accepted as a light arrowhead because the heavy arrowheads, or “munitions with a bigger calibre” are much heavier and longer (JAMES 2007, 216–221).

⁴⁵ COULSTON-PHIL 1985, 265.

⁴⁶ ERDMANN 1976, 6–7, 9.

⁴⁷ ZANIER 1988, 6.

⁴⁸ ZANIER 1988, 7. In Roman Dacia in most cases their presence can be linked to oriental units.

⁴⁹ For a selection, see: RADMAN-LIVAJA 2001, 142, Tab. 149/1; RADMAN-LIVAJA 2004, 56; AVIRAM ET AL. 2007, 22–26, 39–51, pl. 23–26; NICOLAY 2007, 32–33, pl. 35/222.4, 166.3; BISHOP-COULSTON 2009, 79, 112–113, 135–139; JAMES 2007, 202–204; BRUNO 2016, 301, pl. 8.

⁵⁰ GUDEA 2006, 409, fig. 9, 411, fig. 11, 412, fig. 12/1–2.

⁵¹ PETCULESCU 2002, 766, 770, fig. 6/78–90; BARBU-ȚUȚUANU 2021, 86, 90, pl. I/2–3.

⁵² POPESCU-POPESCU 1970, 261, fig. 12/2 (top row).

⁵³ BENEÁ-BONA 1994, fig. 22 (last two).

⁵⁴ BOGDAN-CĂTĂNICIU 1994, 331, fig. 4/2; BOGDAN-CĂTĂNICIU 2008, 174, fig. 3/4.

⁵⁵ STEPHENSON 1999, 85.

⁵⁶ ERDMANN 1982, 7–9.

Palestine, and Egypt.⁵⁷ The type discovered at Călugăreni can be dated more likely to the 3rd century.⁵⁸

Bodkin arrowheads are known from Porolissum,⁵⁹ Micia,⁶⁰ Jidava,⁶¹ Tibiscum,⁶² Ilișua / Alsóilosva – Cristești Ciceului / Csicsókeresztúr,⁶³ Ulpia Traiana Sarmisegetuza,⁶⁴ Urlieni,⁶⁵ so from almost all the sites where trilobate arrowheads were discovered, but in smaller numbers.

The last category of arrowheads is the flat-bladed, socketed category. Based on the typology of N. Gudea, two types can be differentiated, one arrowhead belongs to the SAA2 type (Cat. 115) and four to the SAA3 type (Cat. 116–119). The weight varies between 2.2–6.6 g. The length is between 3.9–6.2 cm. Based on this information, all the socketed pieces can be included in the light arrowhead category.

This type of arrowhead was used from the antiquity to the Middle Ages, which makes it harder to date without its context,⁶⁶ our examples seem to date from the 3rd century.

Flat-bladed arrowheads from Dacia are only attested at Porolissum.⁶⁷ They are also rare in other provinces, some examples are known from Viminacium⁶⁸ and Siscia.⁶⁹

The tang of the trilobate and bodkin arrowheads is mostly broken, which can have several explanations. One possible reason could be the use of arrows, which might lead to the deformation or dislocation of the tang.⁷⁰ Another reason might be related to the context of the discovery, namely the destruction of the *principia*, from

which most of the pieces originate. This can also be true in the case of the socketed ones, where the socket is usually broken or damaged.

The distribution of arrowheads is clearly dominated by the *principia*, where a total of 101 pieces have been found. Of these 101 arrowheads, 68 are trilobate, 28 bodkin and 5 flat-bladed. The dominance of the trilobate ones can be explained by the fact that this was the most common type in the roman military,⁷¹ and the bodkin and the flat-bladed arrowheads have a specific function, like piercing armour in the case of bodkin arrowheads.

The *vicus* shows a different image, of the 11 pieces 7 are bodkin type, and 4 trilobate, one explanation for this can be the quicker manufacturing process.⁷²

Two concentrations of arrowheads have been discovered in the *principia*, one of which was briefly mentioned in a 2019 publication.⁷³ In the south-western room of the southern wing 21 arrowheads were discovered in a small deposit (Cx. 506 and Cx. 510, which are two fills of the same pit), 12 in the clay levelling of the same room (Cx. 482) and 8 arrowheads in the destruction of the possible wooden floor of the room (Cx. 416). All these contexts are related to the last phase of use of the *principia* building, mainly the 3rd century, which also corresponds to the dating of the bodkin arrowheads.⁷⁴

The second concentration was found on the top of a collapsed wall, in the northern wing, which suggests that the arrowheads were deposited on the eastern side of the wall. Unfortunately, only 8 pieces could be analysed from this concentration (Cx. 692).

Based on this, we can confirm that these rooms may have functioned as *armamentaria*.⁷⁵ The rest of the arrowheads were discovered

⁵⁷ RADMAN-LIVAJA 2001, 142.

⁵⁸ BISHOP-COULSTON 2009, 167, fig. 106/11–13.

⁵⁹ GUDEA 2006, 412, fig. 12/3–7.

⁶⁰ PETCULESCU 2002, 766, 770, fig. 6/102–105.

⁶¹ POPESCU-POPESCU 1970, 261, fig. 12/2 (bottom row).

⁶² BENEÁ-BONA 1994, fig. 22 (first two).

⁶³ HICA-CÎMPEANU 1982, 604, fig. 4/4.9.

⁶⁴ ALICU ET AL. 1994, 97, pl. 22/172–173.

⁶⁵ BOGDAN-CĂTĂNICIU 2008, 174, fig. 4/14–16, fig. 5, 175/fig. 6.

⁶⁶ RADMAN-LIVAJA 2001, 143.

⁶⁷ None of them are discussed in the catalogues of GUDEA 2006 or GUDEA 2008.

⁶⁸ MIOMIR-NEMANJA 2009, pl. 8/31.

⁶⁹ RADMAN-LIVAJA 2004, 168, Tab 19; Radman-LIVAJA 2001, 150, Tab 1 (two are tanged).

⁷⁰ BARBU-ȚUȚUIANU 2021, 87.

⁷¹ ZANIER 1988, 7.

⁷² Based on W. Zanier's experiments, and considering the manufacturing process of the trilobate arrowheads, it is visible that a bodkin arrowhead can be made by the first three steps of the trilobate arrowheads (ZANIER 1995, 20, Abb. 2/1–3, 21, Abb. 3/1–3).

⁷³ PÁNCZÉL-LUKÁCSI 2019, 417.

⁷⁴ BISHOP-COULSTON 2009, 167, fig. 106/11–13.

⁷⁵ A similar situation was identified in Dacia at Samum (ISAC 2003, 127, pl. V/1).

individually in layers related to the disuse of the building or their latest phase of use.

The function of an arrow is extremely difficult to determine, as each object has different dimensions, and ideally, they are made for a specific person, taking into account the archery skills of the owner. This is also true of the bow, which is optimised for a particular user in order to achieve maximum performance.⁷⁶

In general, archers prefer arrowheads with more than two blades, such as the trilobate arrows or other types with multiple blades, because the wind can divert two-bladed arrowheads more easily.⁷⁷

Trilobate arrows were probably used for military purposes or hunting.⁷⁸ The ones used for hunting have a larger diameter, with longer blades and the arrowhead is heavier. However, they are not capable of killing the hunted animal instantly, but they cause wounds that can eventually lead to the animal's death.⁷⁹

From a military viewpoint, trilobate arrowheads are the most effective against unarmoured enemies, as they have the necessary qualities to penetrate deep into the enemy's body, but they are not strong enough to pierce an armour.⁸⁰ In combat situations, different methods can be applied to cause maximum damage to the enemy. For example, when an arrow is used in battle, the arrowhead is not fixed too tightly, because this increases the chances of the arrowhead remaining in the enemy's body. Another method is the formation of a „barb” on the lower side of the arrowhead. The barb is the acute angle formed at the bottom of the arrowhead and the tang or the socket. These correspond to the Zanier 1 type of trilobate arrowheads. With this method, the arrowhead penetrates the enemy's body, but the barb makes it more difficult to remove, and after removal, the wound becomes larger. Tanged arrows are more suitable for military purposes, but they also have a disadvantage: when they hit hard surfaces, the arrow may crack, which

results in a loss of impact power. In these cases, using a socketed arrowhead is better.⁸¹

Bodkin arrows were used for piercing armour,⁸² probably because they have a relatively small diameter compared to other arrows, thus concentrating the power in a small area, giving them a chance to break the armour. Of the different armour types used by the Romans, bodkin arrows can be most effectively used against *lorica hamata*, because the arrowhead fits between the rings of the armour and the impact can break them, thus penetrating the enemy's body.

The smallest arrowheads could also be used for hunting smaller animals or birds.⁸³ Due to their very low weight, these arrowheads have a higher speed, which prevents the hunted animal from escaping, but the wound is not necessarily lethal. However, the small diameter of the arrows allows the shaft, which has a diameter between 0.8–1 cm, to strike across its entire width, and thus stun the animal.

The flat bladed arrowheads with a socket are mostly just mentioned in papers, without discussing their function, which was most probably varied. They could be used against armoured enemies, because the power of the impact was concentrated on a relatively small surface, but not as small as the bodkin type, and they could also do enough damage in unarmoured enemies to kill them. In addition to military use, the small diameter of the socket could also be an argument, because when the target tries to remove the arrow from the body, the arrowhead can easily break, thus remaining in the body.

In concluding the possible functions of the arrowheads discovered at Călugăreni, we can affirm that those suitable for military purposes predominated, namely the trilobate arrowheads (the most effective against unarmoured enemies), bodkin arrowheads (against armoured enemies, wearing *lorica hamata*) and the flat-bladed socketed arrowheads. For hunting, two types of arrows can be differentiated: the trilobate arrows with a large diameter, used for hunting large animals, and the small-sized

⁷⁶ COULSTON-PHIL 1985, 264.

⁷⁷ JAMES 2007, 195.

⁷⁸ DELRUE 2007, 246.

⁷⁹ COULSTON-PHIL 1985, 268.

⁸⁰ COULSTON-PHIL 1985, 268.

⁸¹ DELRUE 2007, 246.

⁸² DELRUE 2007, 246; STEPHENSON 1999, 85.

⁸³ PETCULESCU 2002, 767.

arrowheads (both trilobate and bodkin) used for hunting small animals and birds.

The established functionalities are only useful in ideal cases when different archery activities have their specific arrows. In extreme situations, the functionality of the arrows loses its purpose, and they are used where the need is greatest.⁸⁴

CATALOGUE⁸⁵

1. Antler bow ear-lath fragment (Pl. I/1).

Description: Partly broken rounded terminal, rounded nock, broken edge. Worked only on one side, with file marks and green colouring on the surface.

Dimensions (cm): L. 8.9; W. 1.76; th. 2.1; Weight (g): 4.67.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 550; Sf. no. 12002; Inv. no. 14407).

Type: Vass 1a.

2. Antler bow ear-lath fragment (Pl. I/2).

Description: Broken terminal, rounded nock, broken edge. Worked only on one side, with file marks on the surface.

Dimensions (cm): L. 7; W. 1.7; th. 3.1; Weight (g): 5.14.

Findspot: *thermae* (CAL 2013; Tr. B1/2013; Cx. 3003; Sf. no. 3069; Inv. no. 14423).

Type: Vass 1b. Published: PÁNCZÉL-LUKÁCSI 2019, 420, no. 1, pl. 1/1.

3. Unfinished antler bow ear-lath fragment (Pl. I/3).

Description: Terminal slightly damaged, without nock, broken edge. Worked only on one side, with file marks on the surface.

Dimensions (cm): L. 6.3; W. 1.9; th. 3.1; Weight (g): 3.63.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 404; Sf. no. 10865; Inv. no. 14431).

Type: Vass 1. Published: PÁNCZÉL-LUKÁCSI 2019, 421, no. 2, pl. 1/2.

4. Bone arrow nock (Pl. II/4).

Description: Bone component fixed to the rear of the arrow shaft designed to grip the string of the bow, V-shaped notch, the grip and the tang are separated by a horizontal groove. The top of the tang is broken, burning traces, with visible file and knife marks on the surface.

Dimensions (cm): L. 4.9; Dmax. 1.2; Weight (g): 3.24.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 556; Sf. no. 11706; Inv. no. 14432).

Published: PÁNCZÉL-LUKÁCSI 2019, 421, no. 3, pl. 1/3.

5. Bone arrow nock (Pl. II/5).

Description: Bone component fixed to the rear of the arrow shaft designed to grip the string of the bow, V-shaped notch, the grip and the tang are separated by a horizontal groove. The top of the tang is slightly damaged, prominent knife and file marks on the surface.

Dimensions (cm): L. 4.7; Dmax. 1.3; Weight (g): 3.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 654; Sf. no. 12264; Inv. no. 14413).

6. Bone arrow nock (Pl. II/6).

Description: Bone component fixed to the rear of the arrow shaft designed to grip the string of the bow, V-shaped notch, the grip and the tang are separated by a horizontal groove. The top of the tang is broken, file marks on the surface.

Dimensions (cm): L. 3.58; Dmax. 1.2; Weight (g): 2.18.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 692; Sf. no. 12456; Inv. no. 14415).

7. Bone arrow nock (Pl. II/7).

Description: Bone component fixed to the rear of the arrow shaft designed to grip the string of the bow, V-shaped notch, the grip and the tang are separated by a double horizontal groove. The top of the tang is broken, with visible file and knife marks on the surface.

Dimensions (cm): L. 3.7; Dmax. 1.1; Weight (g): 1.7.

⁸⁴ PETCULESCU 2002, 767.

⁸⁵ In the catalogue the following abbreviations have been used: L. = length; Dm. = diameter; Dmax. = maximum diameter; W. = width; th. = thickness, CAL = Călugăreni research excavations; ERC = Călugăreni rescue excavations; Tr. = trench; Cx. = context; Sf. no. = small find number; Inv. no. = inventory number. The artefacts belong to the Archaeological collection of the Mureş County Museum.

Findspot: *principia* (CAL 2023; Tr. A/2023; Cx. 845; Sf. no. 13396; Inv. no. 17235).

8. Iron trilobate tanged arrowhead (Pl. III/8).

Description: The head is composed of three barbed blades. Conserved.

Dimensions (cm): L.: 6.5; W.: 1.8; Dm: 0.4; Weight (g): 3.7.

Find spot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11463; Inv. no. 8915).

Type: Zanier 1.

9. Iron trilobate tanged arrowhead (Pl. III/9).

Description: The head is composed of three barbed blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 5.9; W.: 1.2; Dm: 0.3; Weight (g): 5.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11454; Inv. no. 8913).

Type: Zanier 1.

10. Iron trilobate tanged arrowhead (Pl. III/10).

Description: The head is composed of two barbed blades. One blade is broken. Conserved.

Dimensions (cm): L.: 4.2; W.: 1; Dm: 0.3; Weight (g): 2.6.

Findspot: *principia* (CAL 2013; Tr. A; Cx. 36; Sf. no. 531; Inv. no. 15743).

Type: Zanier 1.

11. Iron trilobate tanged arrowhead (Pl. III/11).

Description: The head is composed of three barbed blades. Two of the blades and the tang are broken. Conserved.

Dimensions (cm): L.: 3.6; W.: 1.3; Dm: 0.3; Weight (g): 2.2.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 560; Sf. no. 11731; Inv. no. 17174).

Type: Zanier 1.

12. Iron trilobate tanged arrowhead (Pl. III/12).

Description: The head is composed of three barbed blades. One of the blades and the tang are broken. Conserved.

Dimensions (cm): L.: 4.3; W.: 1.2; Dm: 0.4; Weight (g): 3.2.

Findspot: *principia* (CAL 2015; Tr. A2; Cx. 118; Sf. no. 969; Inv. no. 17175).

Type: Zanier 1.

13. Iron trilobate tanged arrowhead (Pl. III/13).

Description: The head is composed of three

barbed blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 5.2; W.: 1.7; Dm: 0.4; Weight (g): 3.6.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416; Sf. no. 11360; Inv. no. 8904).

Type: Zanier 1.

14. Iron trilobate tanged arrowhead (Pl. III/14).

Description: The head is composed of three barbed blades. One of the blades and the tang are broken. Conserved.

Dimensions (cm): L.: 4.1; W.: 1.3; Dm: 0.3; Weight (g): 1.6.

Findspot: *vicus* (ERC 2018; Tr. AIII/80 CM 3–4; Cx. 47; Sf. no. 106; Inv. no. 16127).

Type: Zanier 1.

15. Iron trilobate tanged arrowhead (Pl. IV/15).

Description: The head is composed of three barbed blades. Conserved.

Dimensions (cm): L.: 6.7; W.: 1.2; Dm: 0.3; Weight (g): 4.2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11481; Inv. no. 14011).

Type: Zanier 2.

16. Iron trilobate tanged arrowhead (Pl. IV/16).

Description: The head is composed of three barbed blades. Conserved.

Dimensions (cm): L.: 6.9; W.: 1.4; Dm: 0.4; Weight (g): 6.4.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11477; Inv. no. 8920).

Type: Zanier 2.

17. Iron trilobate tanged arrowhead (Pl. IV/17).

Description: The head is composed of three barbed blades. The blades are slightly damaged. Conserved.

Dimensions (cm): L.: 4.9; W.: 1.1; Dm: 0.3; Weight (g): 3.2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11458; Inv. no. 14004).

Type: Zanier 2.

18. Iron trilobate tanged arrowhead (Pl. IV/18).

Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.9; W.: 1.2; Dm: 0.3; Weight (g): 3.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11530; Inv. no. 14014).

Type: Zanier 2.

19. Iron trilobate tanged arrowhead (Pl. IV/19).
Description: The head is composed of three blades. One blade is damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 2.9; W.: 1.4; Dm: 0.4; Weight (g): 1.8.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11475; Inv. no. 8918).

Type: Zanier 2.

20. Iron trilobate tanged arrowhead (Pl. IV/20).
Description: The head is composed of three blades. The tang is fragmentary. Conserved.

Dimensions (cm): L.: 4; W.: 1.3; Dm: 0.4; Weight (g): 3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11488; Inv. no. 14003).

Type: Zanier 2.

21. Iron trilobate tanged arrowhead (Pl. IV/21).
Description: The head is composed of three blades. The blades are slightly damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.8; W.: 1; Weight (g): 2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11529A; Inv. no. 14024).

Type: Zanier 2.

22. Iron trilobate tanged arrowhead (Pl. IV/22).
Description: The head is composed of three blades. The blades are slightly damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 2.2; W.: 1.2; Weight (g): 2.9.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11484; Inv. no. 14009).

Type: Zanier 2.

23. Iron trilobate tanged arrowhead (Pl. IV/23).
Description: The head is composed of three blades. One blade is slightly damaged. Conserved.

Dimensions (cm): L.: 3.6; W.: 0.9; Dm: 0.4; Weight (g): 3.1.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11498; Inv. no. 14021).

Type: Zanier 2.

24. Iron trilobate tanged arrowhead (Pl. IV/24).
Description: The head is composed of three blades, the tang is bent. Conserved.

Dimensions (cm): L.: 5; W.: 0.9; Dm: 0.3; Weight (g): 3.1.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11466; Inv. no. 8916).

Type: Zanier 2.

25. Iron trilobate tanged arrowhead (Pl. IV/25).
Description: The head is composed of three blades. One of the blades and the tang are broken. Conserved.

Dimensions (cm): L.: 4.5; W.: 1.1; Dm: 0.3; Weight (g): 3.2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11349; Inv. no. 8903).

Type: Zanier 2.

26. Iron trilobate tanged arrowhead (Pl. IV/26).
Description: The head is composed of three blades. The blades are damaged. Conserved.

Dimensions (cm): L.: 6.8; W.: 1.1; Dm: 0.4; Weight (g): 7.5.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11462; Inv. no. 8914).

Type: Zanier 2.

27. Iron trilobate tanged arrowhead (Pl. IV/27).
Description: The head is composed of three blades. One of the blades is slightly damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.2; W.: 1; Dm: 0.3; Weight (g): 2.6.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11430; Inv. no. 8911).

Type: Zanier 2.

28. Iron trilobate tanged arrowhead (Pl. V/28).
Description: The head is composed of three blades. One of the blades is damaged. Conserved.

Dimensions (cm): L.: 4.2; W.: 1.1; Dm: 0.3; Weight (g): 4.1.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416; Sf. no. 11345; Inv. no. 8900).

Type: Zanier 2.

29. Iron trilobate tanged arrowhead (Pl. V/29).
Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.6; W.: 1.1; Dm: 0.3; Weight (g): 3.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416; Sf. no. 11424; Inv. no. 8908).

Type: Zanier 2.

30. Iron trilobate tanged arrowhead (Pl. V/30).
Description: The head is composed of three blades. The tip and the tang are broken. Conserved.

Dimensions (cm): L.: 2.3; W.: 1.1; Weight (g): 1.2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416; Sf. no. 11547; Inv. no. 14018).

Type: Zanier 2.

31. Iron trilobate tanged arrowhead (Pl. V/31).
Description: The head is composed of three blades. One of the blades and the tang are broken. Conserved.

Dimensions (cm): L.: 5.3; W.: 1; Dm: 0.4; Weight (g): 3.6.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416; Sf. no. 11426; Inv. no. 8910).

Type: Zanier 2

32. Iron trilobate tanged arrowhead (Pl. V/32).
Description: The head is composed of three blades. Conserved.

Dimensions (cm): L.: 4.4; W.: 1.3; Dm: 0.4; Weight (g): 4.3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 510; Sf. no. 11514; Inv. no. 14015).

Type: Zanier 2.

33. Iron trilobate tanged arrowhead (Pl. V/33).
Description: The head is composed of three blades. One of the blades is broken. Conserved.
Dimensions (cm): L.: 4.1; W.: 1.1; Dm: 0.3; Weight (g): 3.3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 510; Sf. no. 11515; Inv. no. 14013).

Type: Zanier 2.

34. Iron trilobate tanged arrowhead (Pl. V/34).
Description: The head is composed of three blades. One of the blades is broken. Conserved.
Dimensions (cm): L.: 5.3; W.: 0.9; Dm: 0.2; Weight (g): 3.6.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 510; Sf. no. 11509; Inv. no. 14012).

Type: Zanier 2

35. Iron trilobate tanged arrowhead (Pl. VI/35).
Description: The head is composed of three

blades. One of the blades is broken and another is slightly damaged. Conserved.

Dimensions (cm): L.: 5.5; W.: 1.4; Dm: 0.3; Weight (g): 3.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 510; Sf. no. 11510; Inv. no. 14010).

Type: Zanier 2.

36. Iron trilobate tanged arrowhead (Pl. VI/36).
Description: The head is composed of three blades. One of the blades is broken and another is slightly damaged. Conserved.

Dimensions (cm): L.: 4.3; W.: 1; Dm: 0.3; Weight (g): 2.9.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 466; Sf. no. 11336; Inv. no. 8899).

Type: Zanier 2.

37. Iron trilobate tanged arrowhead (Pl. VI/37).
Description: The head is composed of three blades. The blades are damaged, the tip and the lower part of the tang are broken. Not restored.
Dimensions (cm): L.: 3.6; W.: 1.4; Dm: 0.3; Weight (g): 4.8.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 692; Sf. no. 12441; Inv. no. 17193).

Type: Zanier 2.

38. Iron trilobate tanged arrowhead (Pl. VI/38).
Description: The head is composed of three blades. One of the blades is damaged, the tang is broken. Not restored.

Dimensions (cm): L.: 3.9; W.: 1.6; Dm: 0.4; Weight (g): 6.5.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 692; Sf. no. 12466; Inv. no. 17206A).

Type: Zanier 2.

39. Iron trilobate tanged arrowhead (Pl. VI/39).
Description: The head is composed of three blades. One of the blades is broken. Not restored.
Dimensions (cm): L.: 4.5; W.: 1.3; Dm: 0.4; Weight (g): 5.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 692; Sf. no. 12466A; Inv. no. 17206B).

Type: Zanier 2.

40. Iron trilobate tanged arrowhead (Pl. VI/40).
Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.3; W.: 1.3; Dm: 0.4; Weight (g): 2.6.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 542; Sf. no. 11601; Inv. no. 17170).

Type: Zanier 2.

41. Iron trilobate tanged arrowhead (Pl. VI/41).
Description: The head is composed of three blades. The tang is bent and the lower part is broken. Conserved.

Dimensions (cm): L.: 5.2; W.: 1.4; Dm: 0.3; Weight (g): 3.9.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 542; Sf. no. 11626; Inv. no. 17171).

Type: Zanier 2.

42. Iron trilobate tanged arrowhead (Pl. VI/42).
Description: The head is composed of three blades. The tip, one blade and the tang are damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.1; W.: 1.1; Weight (g): 3.7.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 563; Sf. no. 11760; Inv. no. 17177).

Type: Zanier 2.

43. Iron trilobate tanged arrowhead (Pl. VI/43).
Description: The head is composed of three blades. One of the blades and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 3.9; W.: 1.3; Dm: 0.4; Weight (g): 2.7.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 563; Sf. no. 11784; Inv. no. 16120).

Type: Zanier 2.

44. Iron trilobate tanged arrowhead (Pl. VII/44).
Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 2.6; W.: 0.7; Dm: 0.7; Weight (g): 1.4.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 441; Sf. no. 11095; Inv. no. 14002).

Type: Zanier 2.

45. Iron trilobate tanged arrowhead (Pl. VII/45).
Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4; W.: 1.1; Dm: 0.3; Weight (g): 1.6.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 483; Sf. no. 11375; Inv. no. 8906).

Type: Zanier 2.

46. Iron trilobate tanged arrowhead (Pl. VII/46).
Description: The head is composed of three blades. One of the blades and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 4.7; W.: 1.5; Dm: 0.4; Weight (g): 3.5.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 404; Sf. no. 10884; Inv. no. 14001).

Type: Zanier 2.

47. Iron trilobate tanged arrowhead (Pl. VII/47).
Description: The head is composed of three blades. Not restored.

Dimensions (cm): L.: 3.9; W.: 0.9; Dm: 0.3; Weight (g): 2.6.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 654; Sf. no. 12195; Inv. no. 17202).

Type: Zanier 2.

48. Iron trilobate tanged arrowhead (Pl. VII/48).
Description: The head is composed of three blades. The lower part of the tang is broken. Not restored.

Dimensions (cm): L.: 3.8; W.: 1.4; Dm: 0.3; Weight (g): 4.3.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 708; Sf. no. 12512; Inv. no. 17196).

Type: Zanier 2.

49. Iron trilobate tanged arrowhead (Pl. VII/49).
Description: The head is composed of three blades. The blades are damaged, the lower part of the tang is broken. Not restored.

Dimensions (cm): L.: 4.8; W.: 1.5; Dm: 0.5; Weight (g): 7.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 708; Sf. no. 12495; Inv. no. 17194).

Type: Zanier 2.

50. Iron trilobate tanged arrowhead (Pl. VII/50).
Description: The head is composed of three blades. The tip and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 2.6; W.: 1.5; Dm: 0.4; Weight (g): 3.3.

Findspot: *principia* (CAL 2015; Tr. A1; Cx. 192; Sf. no. 10320; Inv. no. 14044).

Type: Zanier 2.

51. Iron trilobate tanged arrowhead (Pl. VII/51).
Description: The head is composed of one

remaining blade Two blades and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 4.4; W.: 1; Dm: 0.4; Weight (g): 2.6.

Findspot: *principia* (CAL 2015; Tr. A1; Cx. 116; Sf. no. 989; Inv. no. 17176).

Type: Zanier 2.

52. Iron trilobate tanged arrowhead (Pl. VII/52). Description: The head is composed of three blades. The blades are damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 2.9; W.: 0.7; Dm: 0.4; Weight (g): 2.2.

Findspot: *vicus* (CAL 2019; Tr. N/A; Cx. N/A; Sf. no. 11997; Inv. no. 14038).

Type: Zanier 2.

53. Iron trilobate tanged arrowhead (Pl. VII/53). Description: The head is composed of three blades. The blades are damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.6; W.: 1.5; Dm: 0.4; Weight (g): 3.2.

Findspot: *vicus* (CAL 2019; Tr. C6; Cx. 2136; Sf. no. 6186; Inv. no. 14039).

Type: Zanier 2.

54. Iron trilobate tanged arrowhead (Pl. VIII/54). Description: The head is composed of three blades. Conserved.

Dimensions (cm): L.: 3.5; W.: 0.9; Dm: 0.3; Weight (g): 3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11491; Inv. no. 14019).

Type: Zanier 3.

55. Iron trilobate tanged arrowhead (Pl. VIII/55). Description: The head is composed of three blades. The blades are slightly damaged. Conserved.

Dimensions (cm): L.: 4.9; W.: 1.1; Dm: 0.3; Weight (g): 4.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11480; Inv. no. 14022).

Type: Zanier 3.

56. Iron trilobate tanged arrowhead (Pl. VIII/56). Description: The head is composed of three blades. The blades are slightly damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 5.4; W.: 1.3; Dm: 0.3; Weight (g): 6.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11529; Inv. no. 14023).

Type: Zanier 3.

57. Iron trilobate tanged arrowhead (Pl. VIII/57). Description: The head is composed of three blades. Conserved.

Dimensions (cm): L.: 4.8; W.: 1.2; Dm: 0.3; Weight (g): 3.3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11476; Inv. no. 8919).

Type: Zanier 3.

58. Iron trilobate tanged arrowhead (Pl. VIII/58). Description: The head is composed of three blades. The tang is fragmentary. Conserved.

Dimensions (cm): L.: 5.8; W.: 1.4; Dm: 0.3; Weight (g): 5.1.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11532; Inv. no. 14000).

Type: Zanier 3.

59. Iron trilobate tanged arrowhead (Pl. VIII/59). Description: The head is composed of three blades. The blades are slightly damaged, the tip and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 2.9; W.: 0.9; Dm: 0.3; Weight (g): 1.5.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11490; Inv. no. 14007).

Type: Zanier 3.

60. Iron trilobate tanged arrowhead (Pl. VIII/60). Description: The head is composed of three blades. The tang is broken. Conserved.

Dimensions (cm): L.: 4.1; W.: 1; Dm: 0.3; Weight (g): 3.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11468; Inv. no. 8917).

Type: Zanier 3.

61. Iron trilobate tanged arrowhead (Pl. VIII/61). Description: The head is composed of three blades. The tang is broken. Conserved.

Dimensions (cm): L.: 3.5; W.: 1; Dm: 0.3; Weight (g): 3.3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11493; Inv. no. 14016).

Type: Zanier 3.

62. Iron trilobate tanged arrowhead (Pl. VIII/62).
Description: The head is composed of three blades. The tang is broken. Conserved.

Dimensions (cm): L.: 3.2; W.: 1.4; Dm: 0.4;
Weight (g): 2.8.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482;
Sf. no. 11495; Inv. no. 14005).

Type: Zanier 3.

63. Iron trilobate tanged arrowhead (Pl. IX/63).
Description: The head is composed of three blades. Conserved.

Dimensions (cm): L.: 7.6; W.: 1.6; Dm: 0.4;
Weight (g): 5.2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482;
Sf. no. 11433; Inv. no. 8912).

Type: Zanier 3.

64. Iron trilobate tanged arrowhead (Pl. IX/64).
Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.3; W.: 0.9; Dm: 0.3;
Weight (g): 3.4.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416;
Sf. no. 11347; Inv. no. 8901).

Type: Zanier 3.

65. Iron trilobate tanged arrowhead (Pl. IX/65).
Description: The head is composed of three blades. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.4; W.: 1.1; Dm: 0.3;
Weight (g): 3.9.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416;
Sf. no. 11425; Inv. no. 8909).

Type: Zanier 3.

66. Iron trilobate tanged arrowhead (Pl. IX/66).
Description: The head is composed of two blades. One blade and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 3.6; W.: 1; Dm: 0.3; Weight
(g): 1.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 416;
Sf. no. 11504; Inv. no. 14006).

Type: Zanier 3.

67. Iron trilobate tanged arrowhead (Pl. IX/67).
The head is composed of three blades. The tang is bent and the lower part is broken. Conserved.
Dimensions (cm): L.: 3.6; W.: 1.1; Dm: 0.3;
Weight (g): 2.1.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 510;
Sf. no. 11513; Inv. no. 14020).

Type: Zanier 3.

68. Iron trilobate tanged arrowhead (Pl. IX/68).
Description: The head is composed of three blades. The lower part of the tang is broken. Not restored.

Dimensions (cm): L.: 6.3; W.: 2.4; Dm: 0.3;
Weight (g): 8.1.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx.
692; Sf. no. 12434; Inv. no. 17204).

Type: Zanier 3.

69. Iron trilobate tanged arrowhead (Pl. IX/69).
Description: The head is composed of one blade. Two blades are broken. Not restored.

Dimensions (cm): L.: 4.8; W.: 0.8; Dm: 0.4;
Weight (g): 3.2.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx.
692; Sf. no. 12428; Inv. no. 17203).

Type: Zanier 3.

70. Iron trilobate tanged arrowhead (Pl. IX/70).
Description: The head is composed of three blades. One blade is damaged, the tang is broken. Not restored.

Dimensions (cm): L.: 3.5; W.: 1.2; Weight (g):
3.4.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx.
692; Sf. no. 12451; Inv. no. 17205).

Type: Zanier 3.

71. Iron trilobate tanged arrowhead (Pl. IX/71).
Description: The head is composed of three blades. The blades are slightly damaged, the tang is broken. Conserved.

Dimensions (cm): L.: 5.9; W.: 1.4; Dm: 0.4;
Weight (g): 5.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx.
563; Sf. no. 11769; Inv. no. 17178).

Type: Zanier 3.

72. Iron trilobate tanged arrowhead (Pl. X/72).
Description: The head is composed of three blades. The tang is broken. Conserved.

Dimensions (cm): L.: 2.6; W.: 0.9; Weight (g):
2.3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 483;
Sf. no. 11373; Inv. no. 8905).

Type: Zanier 3.

73. Iron trilobate tanged arrowhead (Pl. X/73).
Description: The head is composed of three blades. The blades are slightly damaged, the tang is broken. Conserved.

Dimensions (cm): L.: 2.6; W.: 1.2; Weight (g): 2.6.

Findspot: *principia* (CAL 2017; Tr. A6; Cx. 505; Sf. no. 11540; Inv. no. 14017).

Type: Zanier 3.

74. Iron trilobate tanged arrowhead (Pl. X/74).
Description: The head is composed of three blades. One blade and the tang are broken. Not restored.

Dimensions (cm): L.: 4.3; W.: 1.4; Dm: 0.4; Weight (g): 5.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 654; Sf. no. 12251; Inv. no. 17195).

Type: Zanier 3.

75. Iron trilobate tanged arrowhead (Pl. X/75).
Description: The head is composed of three blades. The blades are slightly damaged. Not restored.

Dimensions (cm): L.: 5.3; W.: 1.4; Dm: 0.3; Weight (g): 5.7.

Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 688; Sf. no. 12373; Inv. no. 17197).

Type: Zanier 3.

76. Iron trilobate tanged arrowhead (Pl. X/76).
Description: The head is composed of three blades. The blades are slightly damaged, the tang is broken. Conserved.

Dimensions (cm): L.: 3.2; W.: 1.1; Weight (g): 3.3.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 539; Sf. no. 11604; Inv. no. 17173).

Type: Zanier 3.

77. Iron trilobate tanged arrowhead (Pl. X/77).
Description: The head is composed of three blades. One blade is broken. Conserved.

Dimensions (cm): L.: 4.5; W.: 1.2; Dm: 0.3; Weight (g): 2.3.

Findspot: *principia* (CAL 2015; Tr. A3; Cx. 114; Sf. no. 10072; Inv. no. 14043).

Type: Zanier 3.

78. Iron trilobate tanged arrowhead (Pl. X/78).
Description: The head is composed of three blades. The blades are damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.1; W.: 1.2; Dm: 0.5; Weight (g): 2.2.

Findspot: *vicus* (ERC 2018; Tr. AIII/80 CM 11–12; Cx. 228; Sf. no. 373; Inv. no. 17172).

Type: Zanier 3.

79. Iron trilobate tanged arrowhead (Pl. X/79).
Description: The head is composed of three blades. The blades are damaged, the tip and the lower part of the tang are broken. Conserved.

Dimensions (cm): L.: 4.1; W.: 1.2; Dm: 0.5; Weight (g): 2.2.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506; Sf. no. 11531; Inv. no. 14008).

80. Iron bodkin tanged arrowhead (Pl. XI/80).
Description: Rhomboidal head with rectangular section. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 2.8; W.: 0.7; Dm: 0.3; Weight (g): 1.6.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 323; Sf. no. 11573; Inv. no. 16128).

Type: Gudea SAB2.

81. Iron bodkin tanged arrowhead (Pl. XI/81).
Description: Rhomboidal head with rectangular section. The tang is broken. Conserved.

Dimensions (cm): L.: 4.9; W.: 1.2; Weight (g): 6.

Findspot: *principia* (CAL 2018; Tr. A6; Cx. 479; Sf. no. 11384; Inv. no. 14031).

Type: Gudea SAB2.

82. Iron bodkin tanged arrowhead (Pl. XI/82).
Description: Rhomboidal head with rectangular section. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 2.9; W.: 0.7; Dm: 0.5; Weight (g): 1.7.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 406; Sf. no. 10773; Inv. no. 14027).

Type: Gudea SAB2.

83. Iron bodkin tanged arrowhead (Pl. XI/83).
Description: Rhomboidal head with square section. Conserved.

Dimensions (cm): L.: 4.6; W.: 0.7; Dm: 0.2; Weight (g): 3.3.

Findspot: *principia* (CAL 2019; Tr. A/2019; Cx. 587; Sf. no. 11958; Inv. no. 14036).

Type: Gudea SAB6.

84. Iron bodkin tanged arrowhead (Pl. XI/84).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 5.2; W.: 0.7; Dm: 0.2;
Weight (g): 4.4.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 506;
Sf. no. 11478; Inv. no. 8979).

Type: Gudea SAB6.

85. Iron bodkin tanged arrowhead (Pl. XI/85).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.1; W.: 0.6; Dm: 0.3;
Weight (g): 2.7.

Findspot: *principia* (CAL 2017; Tr. A6; Cx. 478;
Sf. no. 11353; Inv. no. 14033).

Type: Gudea SAB6.

86. Iron bodkin tanged arrowhead (Pl. XI/86).
Description: Rhomboidal head with square section. The tip is broken. Conserved.

Dimensions (cm): L.: 6.5; W.: 0.8; Dm: 0.3;
Weight (g): 4.7.

Findspot: *principia* (CAL 2015; Tr. A1; Cx. 117;
Sf. no. 10045; Inv. no. 17181).

Type: Gudea SAB6.

87. Iron bodkin tanged arrowhead (Pl. XI/87).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.6; W.: 0.7; Dm: 0.3;
Weight (g): 3.1.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 406;
Sf. no. 10881; Inv. no. 14028).

Type: Gudea SAB6.

88. Iron bodkin tanged arrowhead (Pl. XI/88).
Description: Rhomboidal head with square section. Conserved.

Dimensions (cm): L.: 3.5; W.: 0.5; Dm: 0.5;
Weight (g): 1.3.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 441;
Sf. no. 11094; Inv. no. 8896).

Type: Gudea SAB6.

89. Iron bodkin tanged arrowhead (Pl. XI/89).
Description: Rhomboidal head with square section. The tip is bent. Conserved.

Dimensions (cm): L.: 2.3; W.: 0.9; Dm: 0.4;
Weight (g): 2.2.

Findspot: *vicus* (ERC 2018; Tr. AIII/81 CM 4–5;
Cx. 105; Sf. no. 196; Inv. no. 17191).

Type: Gudea SAB6.

90. Iron bodkin tanged arrowhead (Pl. XI/90).
Description: Rhomboidal head with square section. Slightly damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 3.3; W.: 0.7; Dm: 0.3;
Weight (g): 4.3.

Findspot: *vicus* (ERC 2018; Tr. AIII/80 CM 4–5;
Cx. 54; Sf. no. 109A; Inv. no. 17187A).

Type: Gudea SAB6.

91. Iron bodkin tanged arrowhead (Pl. XI/91).
Description: Rhomboidal head with square section. The tip is bent, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.3; W.: 0.7; Dm: 0.3;
Weight (g): 3.

Findspot: *vicus* (ERC 2018; Tr. AIII/80 CM 4–5;
Cx. 54; Sf. no. 109B; Inv. no. 17187B).

Type: Gudea SAB6.

92. Iron bodkin tanged arrowhead (Pl. XI/92).
Description: Rhomboidal head with square section. The upper part of the tang is bent, the lower part is broken. Conserved.

Dimensions (cm): L.: 3.3; W.: 0.9; Dm: 0.3;
Weight (g): 3.2.

Findspot: *vicus* (CAL 2013; Tr. C; Cx. 2001; Sf.
no. 2212; Inv. no. 17183).

Type: Gudea SAB6.

93. Iron bodkin tanged arrowhead (Pl. XII/93).
Description: Rhomboidal head with square section. The tang is broken. Conserved.

Dimensions (cm): L.: 2.3; W.: 0.4; Dm: 0.2;
Weight (g): 0.6.

Findspot: *principia* (CAL 2019; Tr. A/2019; Cx.
587; Sf. no. 11965; Inv. no. 14037).

Type: Gudea SAB7.

94. Iron bodkin tanged arrowhead (Pl. XII/94).
Description: Rhomboidal head with square section. Slightly damaged, the lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 8.6; W.: 0.7; Dm: 0.3;
Weight (g): 7.5.

Findspot: *principia* (CAL 2019; Tr. A/2019; Cx.
587; Sf. no. 11923; Inv. no. 14035).

Type: Gudea SAB7.

95. Iron bodkin tanged arrowhead (Pl. XII/95).
Description: Rhomboidal head with square section. Conserved.
Dimensions (cm): L.: 3.1; W.: 0.8; Dm: 0.2; Weight (g): 2.
Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 560; Sf. no. 11779; Inv. no. 17189).
Type: Gudea SAB7.
96. Iron bodkin tanged arrowhead (Pl. XII/96).
Description: Rhomboidal head with square section. The tang is bent. Conserved.
Dimensions (cm): L.: 2.6; W.: 0.5; Dm: 0.3; Weight (g): 0.7.
Findspot: *principia* (CAL 2017; Tr. A6; Cx. 411; Sf. no. 10857; Inv. no. 17188).
Type: Gudea SAB7.
97. Iron bodkin tanged arrowhead (Pl. XII/97).
Description: Rhomboidal head with square section. The tang is slightly bent. Conserved.
Dimensions (cm): L.: 6.4; W.: 1.1; Dm: 0.3; Weight (g): 9.9.
Findspot: *principia* (CAL 2017; Tr. A7; Cx. 476; Sf. no. 11358; Inv. no. 14030).
Type: Gudea SAB7.
98. Iron bodkin tanged arrowhead (Pl. XII/98).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Conserved.
Dimensions (cm): L.: 2.8; W.: 0.7; Dm: 0.6; Weight (g): 1.6.
Findspot: *principia* (CAL 2017; Tr. A7; Cx. 441; Sf. no. 11099; Inv. no. 8897).
Type: Gudea SAB7.
99. Iron bodkin tanged arrowhead (Pl. XII/99).
Description: Rhomboidal head with square section. The tip and the lower part of the tang are broken. Conserved.
Dimensions (cm): L.: 4.2; W.: 0.6; Dm: 0.3; Weight (g): 2.6.
Findspot: *principia* (CAL 2017; Tr. A7; Cx. 459; Sf. no. 11413; Inv. no. 8907).
Type: Gudea SAB7.
100. Iron bodkin tanged arrowhead (Pl. XII/100).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Conserved.
Dimensions (cm): L.: 4.6; W.: 0.6; Dm: 0.3; Weight (g): 2.3.
Findspot: *principia* (CAL 2017; Tr. A7; Cx. 406; Sf. no. 10829; Inv. no. 14026).
Type: Gudea SAB7.
101. Iron bodkin tanged arrowhead (Pl. XII/101).
Description: Rhomboidal head with square section. The tip and the lower part of the tang are broken. Conserved.
Dimensions (cm): L.: 8.1; W.: 0.4; Dm: 0.3; Weight (g): 5.6.
Findspot: *principia* (CAL 2017; Tr. A7; Cx. 483; Sf. no. 11369; Inv. no. 14029).
Type: Gudea SAB7.
102. Iron bodkin tanged arrowhead (Pl. XII/102).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Not restored.
Dimensions (cm): L.: 4.2; W.: 0.7; Dm: 0.3; Weight (g): 4.3.
Findspot: *principia* (CAL 2015; Tr. A1; Cx. 116; Sf. no. 10139; Inv. no. 14052).
Type: Gudea SAB7.
103. Iron bodkin tanged arrowhead (Pl. XIII/103).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Not restored.
Dimensions (cm): L.: 4.6; W.: 0.8; Dm: 0.4; Weight (g): 4.
Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 692; Sf. no. 12482; Inv. no. 17207).
Type: Gudea SAB7.
104. Iron bodkin tanged arrowhead (Pl. XIII/104).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Not restored.
Dimensions (cm): L.: 4.3; W.: 0.8; Dm: 0.3; Weight (g): 5.5.
Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 649; Sf. no. 12065; Inv. no. 17200).
Type: Gudea SAB7.
105. Iron bodkin tanged arrowhead (Pl. XIII/105).
Description: Rhomboidal head with square section. The tip and the lower part of the tang are broken. Conserved.
Dimensions (cm): L.: 2.9; W.: 0.7; Dm: 0.4; Weight (g): 1.3.
Findspot: *principia* (CAL 2016; Tr. A4; Cx. 254; Sf. no. 10402; Inv. no. 17184).
Type: Gudea SAB7.

106. Iron bodkin tanged arrowhead (Pl. XIII/106).
Description: Rhomboidal head with square section. The tip is bent. Conserved.

Dimensions (cm): L.: 4.6; W.: 0.6; Dm: 0.2;
Weight (g): 2.2.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 550; Sf. no. 11715; Inv. no. 17182).

Type: Gudea SAB7.

107. Iron bodkin tanged arrowhead (Pl. XIII/107).
Description: Rhomboidal head with square section. The lower part of the tang is broken. Conserved.

Dimensions (cm): L.: 4.4; W.: 0.7; Dm: 0.2;
Weight (g): 2.7.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 542; Sf. no. 11671; Inv. no. 16129).

Type: Gudea SAB7.

108. Iron bodkin tanged arrowhead (Pl. XIII/108).
Description: Rhomboidal head with square section. Slightly damaged. Conserved.

Dimensions (cm): L.: 3.2; W.: 0.3; Dm: 0.2;
Weight (g): 0.9.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 542; Sf. no. 11580; Inv. no. 17180).

Type: Gudea SAB7.

109. Iron bodkin tanged arrowhead Pl. XIII/109.
Description: Rhomboidal head with square section. Slightly damaged. Conserved.

Dimensions (cm): L.: 5.4; W.: 0.7; Dm: 0.3;
Weight (g): 4.7.

Findspot: *vicus* (CAL 2016; Tr. N/A; Cx. N/A; Sf. no. 6042; Inv. no. 17185).

Type: Gudea SAB7.

110. Iron bodkin tanged arrowhead Pl. XIII/110.
Description: Rhomboidal head with square section. The head is bent, the tang is missing. Conserved.

Dimensions (cm): L.: 3.3; W.: 0.5; Weight (g): 1.7.

Findspot: *vicus* (ERC 2018; Tr. AIII/80 CM 3–4; Cx. 26; Sf. no. 52; Inv. no. 17190).

Type: Gudea SAB7.

111. Iron bodkin tanged arrowhead (Pl. XIII/111).
Description: Rhomboidal head with square section. The tang is bent. Conserved.

Dimensions (cm): L.: 3.3; W.: 0.4; Dm: 0.3;
Weight (g): 1.1.

Findspot: *vicus* (ERC 2018; Tr. AIII/81 CM 1–2; Cx. 109; Sf. no. 190; Inv. no. 17186).

Type: Gudea SAB7.

112. Iron bodkin tanged arrowhead (Pl. XIII/112).
Description: Rhomboidal head with square section. The tang is broken. Conserved.

Dimensions (cm): L.: 3.9; W.: 0.8; Weight (g): 7.3.

Findspot: *principia* (CAL 2019; Tr. A/2019; Cx. 583; Sf. no. 11819; Inv. no. 14034).

113. Iron bodkin tanged arrowhead (Pl. XIII/113).
Description: Rhomboidal head with square section. The tip is broken. Conserved.

Dimensions (cm): L.: 3.9; W.: 0.5; Weight (g): 2.5.

Findspot: *principia* (CAL 2017; Tr. A7; Cx. 482; Sf. no. 11499; Inv. no. 14032).

114. Iron bodkin tanged arrowhead (Pl. XIII/114).
Description: Rhomboidal head with trapeze section. The tip is broken. Conserved.

Dimensions (cm): L.: 4; W.: 1.4; Weight (g): 7.8.

Findspot: *principia* (CAL 2019; Tr. A/2019; Cx. 593; Sf. no. 11877; Inv. no. 17199).

115. Iron flat bladed socketed arrowhead (Pl. XIV/115).

Description: Flat two-bladed head. The lower part of the socket is broken. Conserved.

Dimensions (cm): L.: 3.9; W.: 1.4; Dm: 0.5;
Weight (g): 2.2.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 563; Sf. no. 11740; Inv. no. 17192).

Type: Gudea SAA2.

116. Iron flat bladed socketed arrowhead (Pl. XIV/116).

Description: Flat two-bladed head. The tip is broken, the lower part of the socket is slightly damaged. Conserved.

Dimensions (cm): L.: 4.6; W.: 1.2; Dm: 0.5;
Weight (g): 2.9.

Findspot: *principia* (CAL 2018; Tr. A5/2018; Cx. 563; Sf. no. 11732; Inv. no. 17198).

Type: Gudea SAA3.

117. Iron flat bladed socketed arrowhead (Pl. XIV/117).

Description: Flat two-bladed head. The lower part of the socket is slightly damaged. Conserved.

- Dimensions (cm): L.: 6.2; W.: 1.3; Dm: 0.6; Weight (g): 5.7.
Findspot: *principia* (CAL 2017; Tr. A7; Cx. 418; Sf. no. 10921; Inv. no. 14034).
Type: Gudea SAA3.
118. Iron flat bladed socketed arrowhead (Pl. XIV/118).
Description: Flat two-bladed head. The lower part of the socket is slightly damaged. Conserved.
Dimensions (cm): L.: 5.3; W.: 1.2; Dm: 0.7; Weight (g): 4.
- Findspot: *principia* (CAL 2016; Tr. A4; Cx. 259; Sf. no. 10416; Inv. no. 15744).
Type: Gudea SAA3.
119. Iron flat bladed socketed arrowhead (Pl. XIV/119).
Description: Flat two-bladed head. The tip and the lower part of the socket are broken. Not restored.
Dimensions (cm): L.: 3.9; W.: 1.2; Dm: 0.5; Weight (g): 6.6.
Findspot: *principia* (CAL 2021; Tr. A8/2021; Cx. 649; Sf. no. 12107; Inv. no. 17201).
Type: Gudea SAA3.

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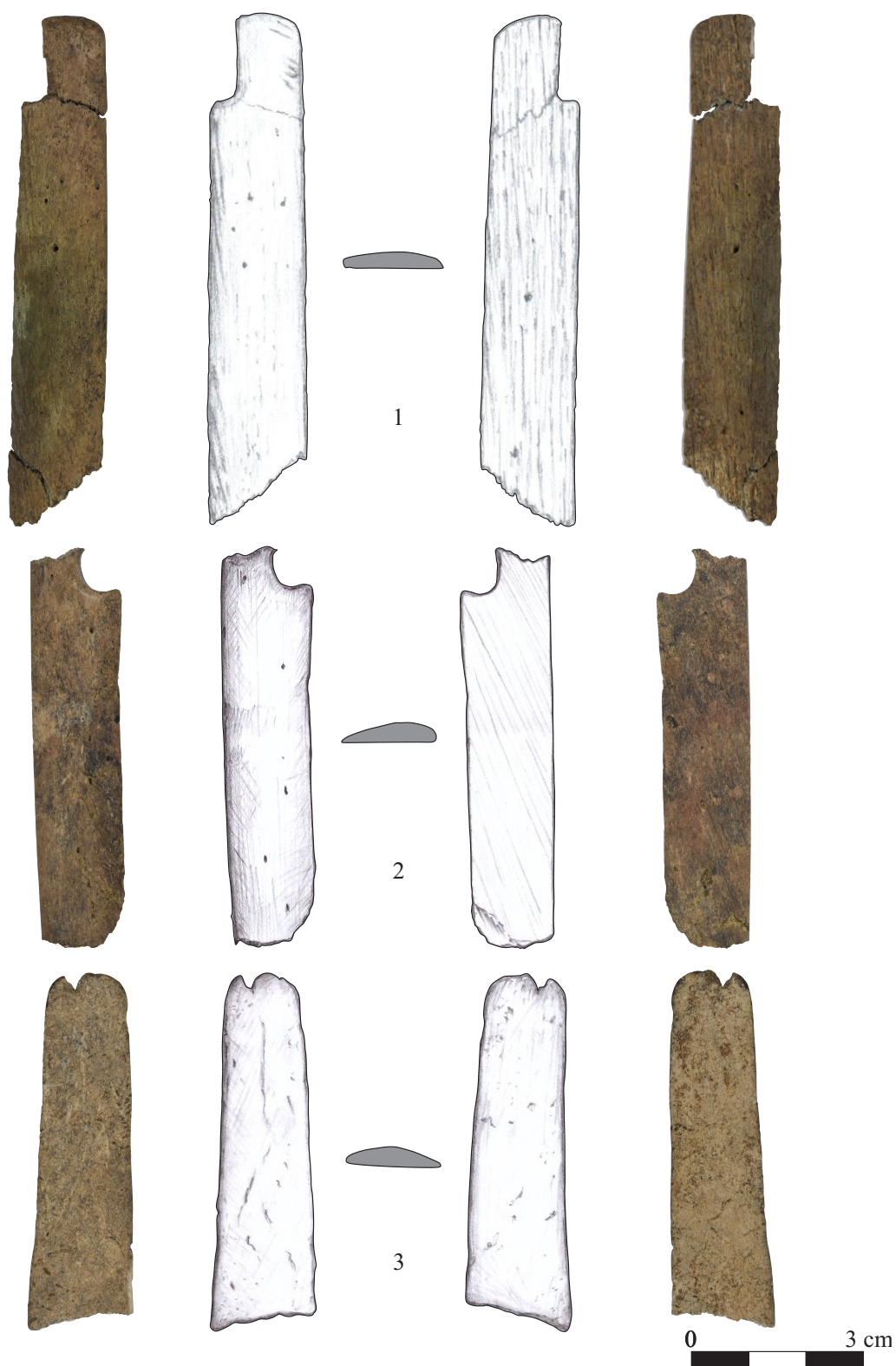
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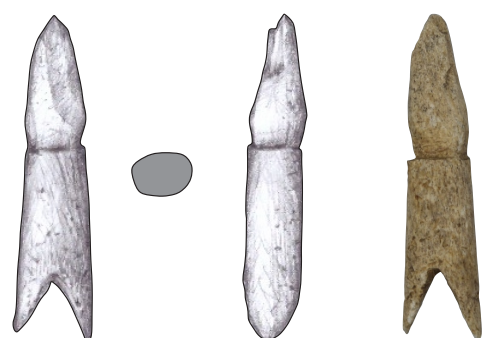
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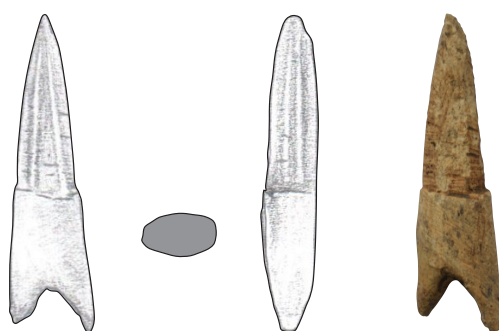
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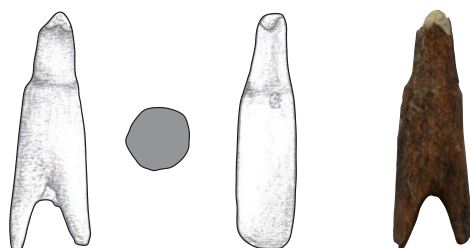
Pl. I. Bone ear-lath fragments (Cat. 1-3).



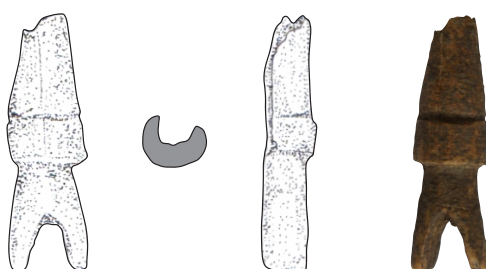
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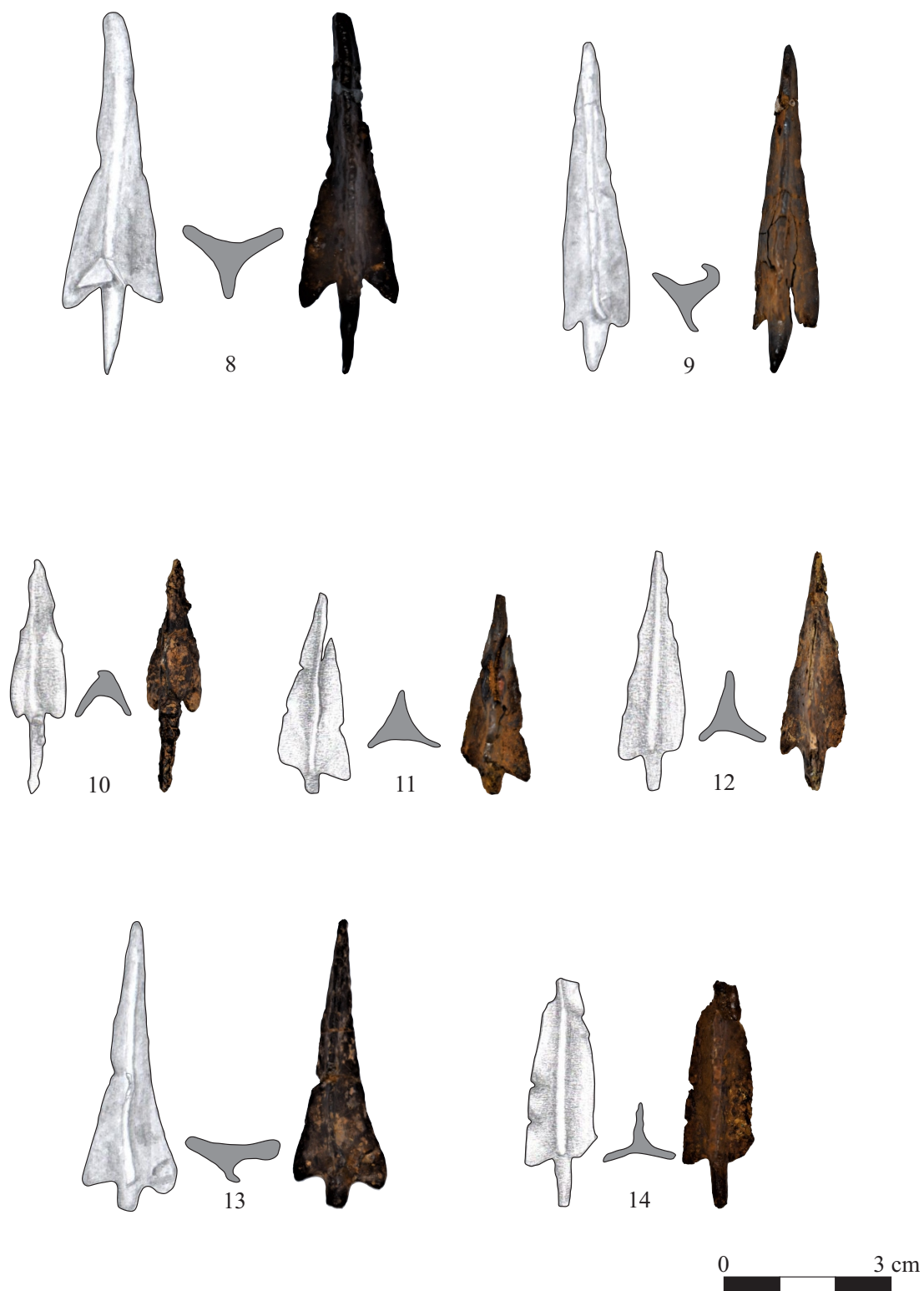
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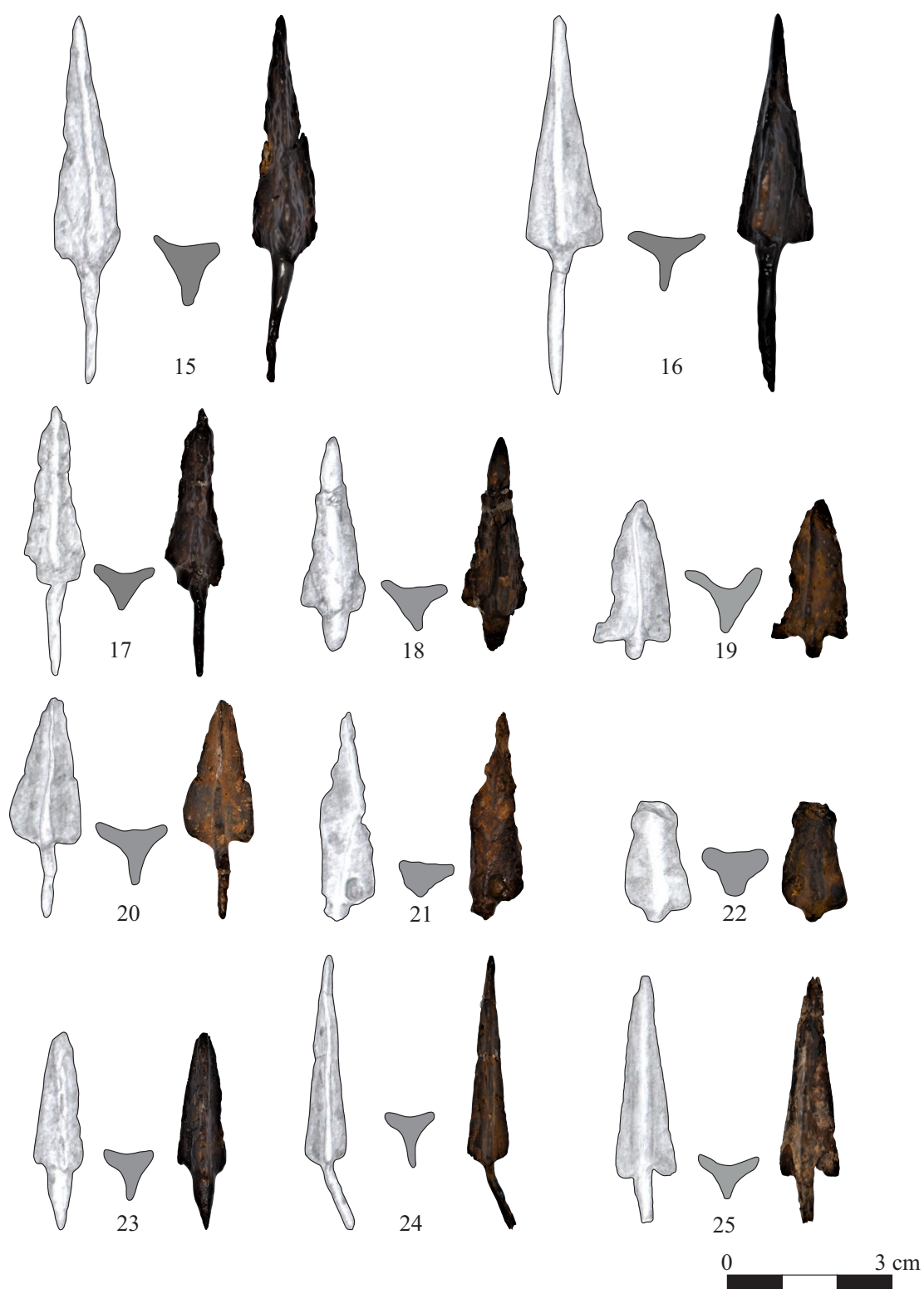
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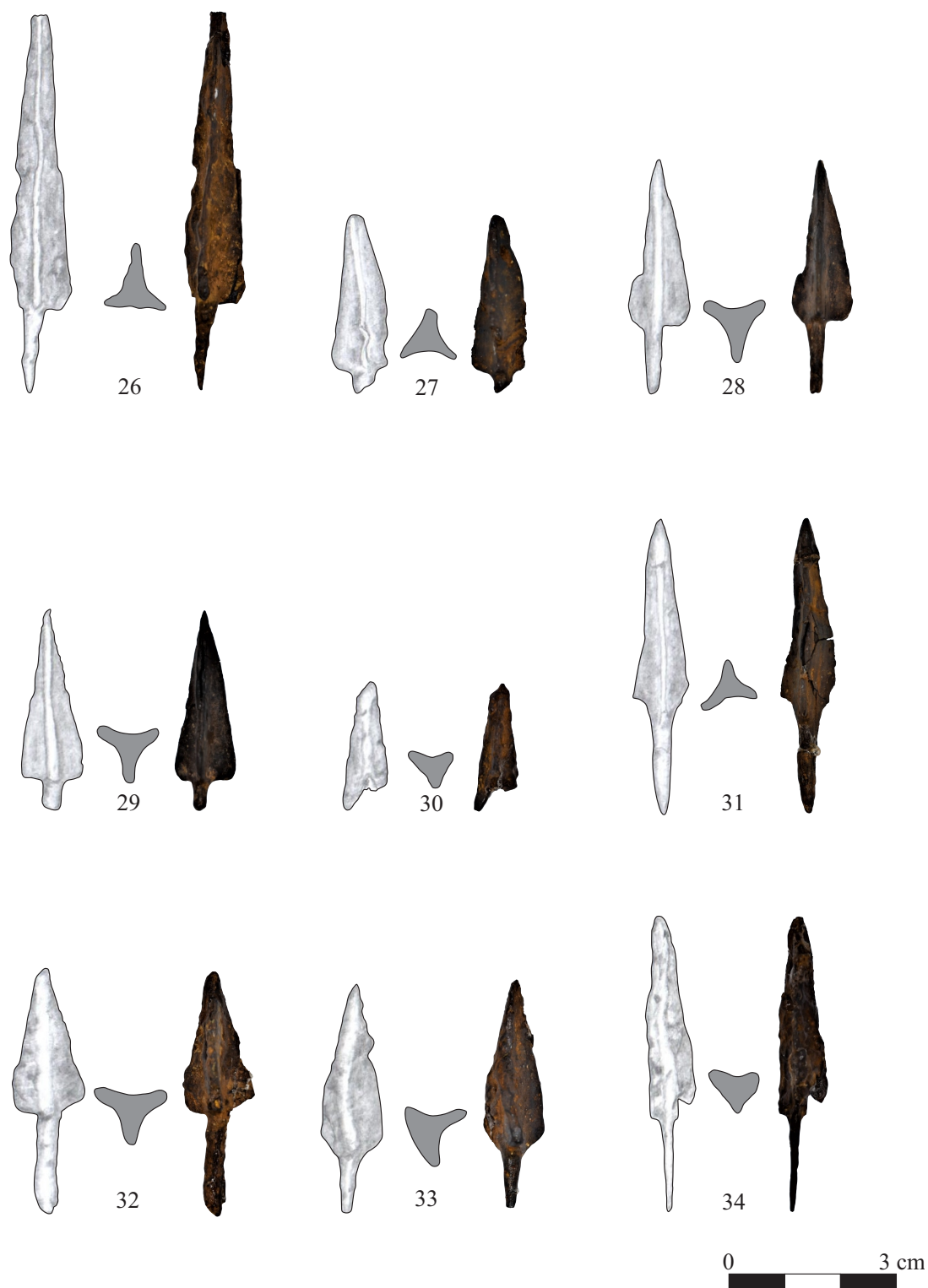
Pl. II. Bone arrow nocks (Cat. 4–7).



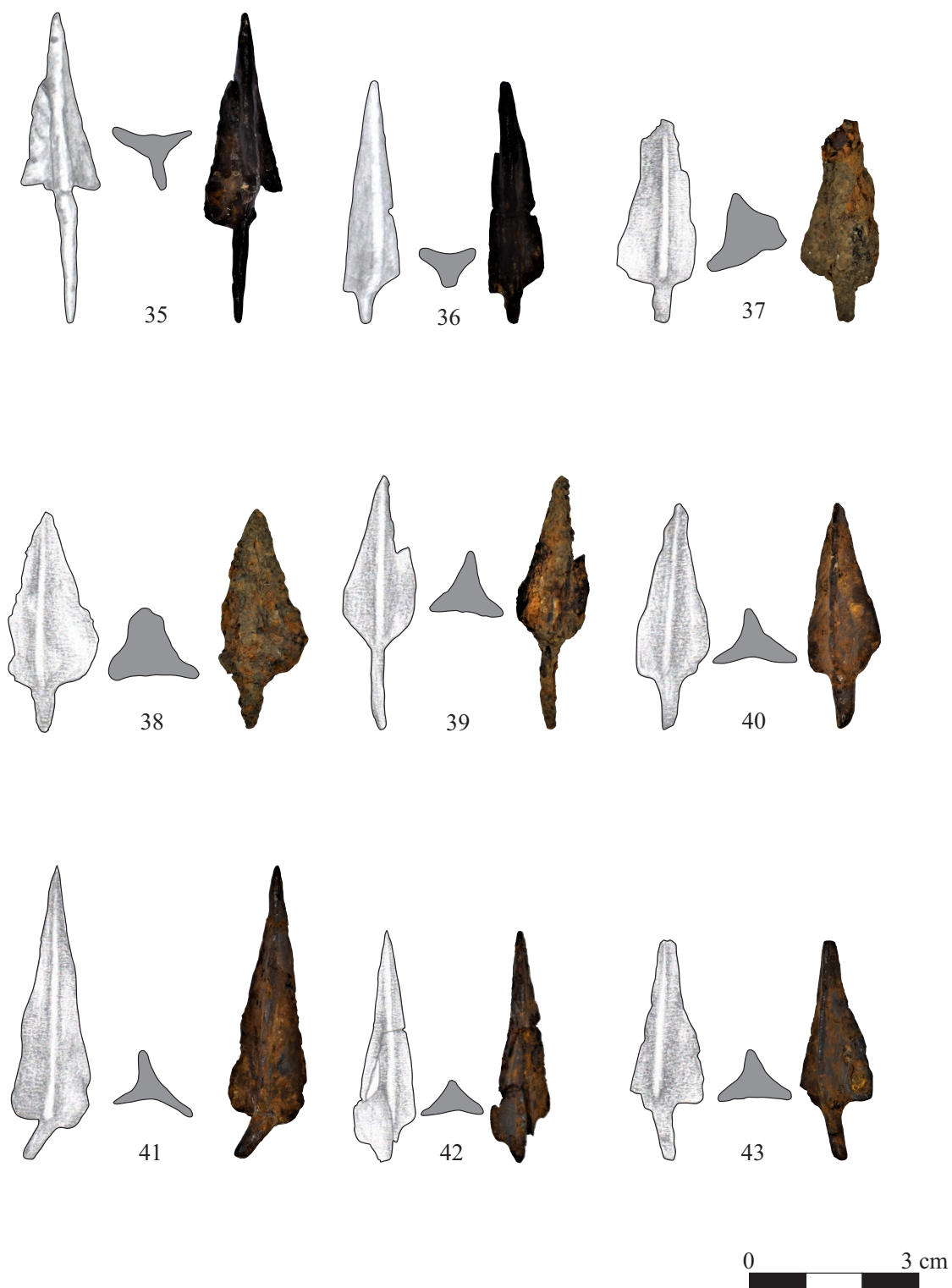
Pl. III. Trilobate arrowheads type Zanier 1 (Cat. 8–14).



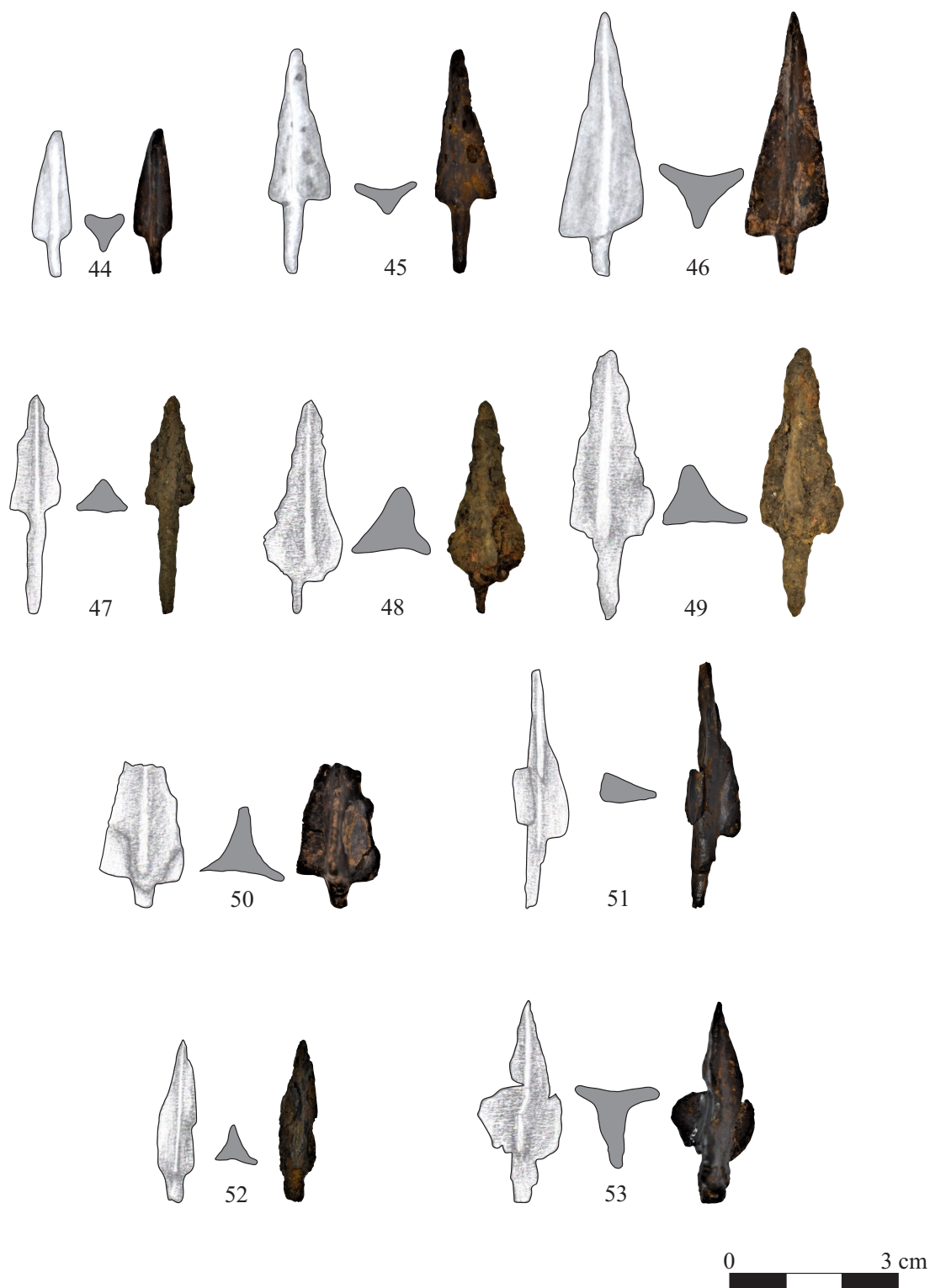
Pl. IV. Trilobate arrowheads type Zanier 2 (Cat. 15–25).



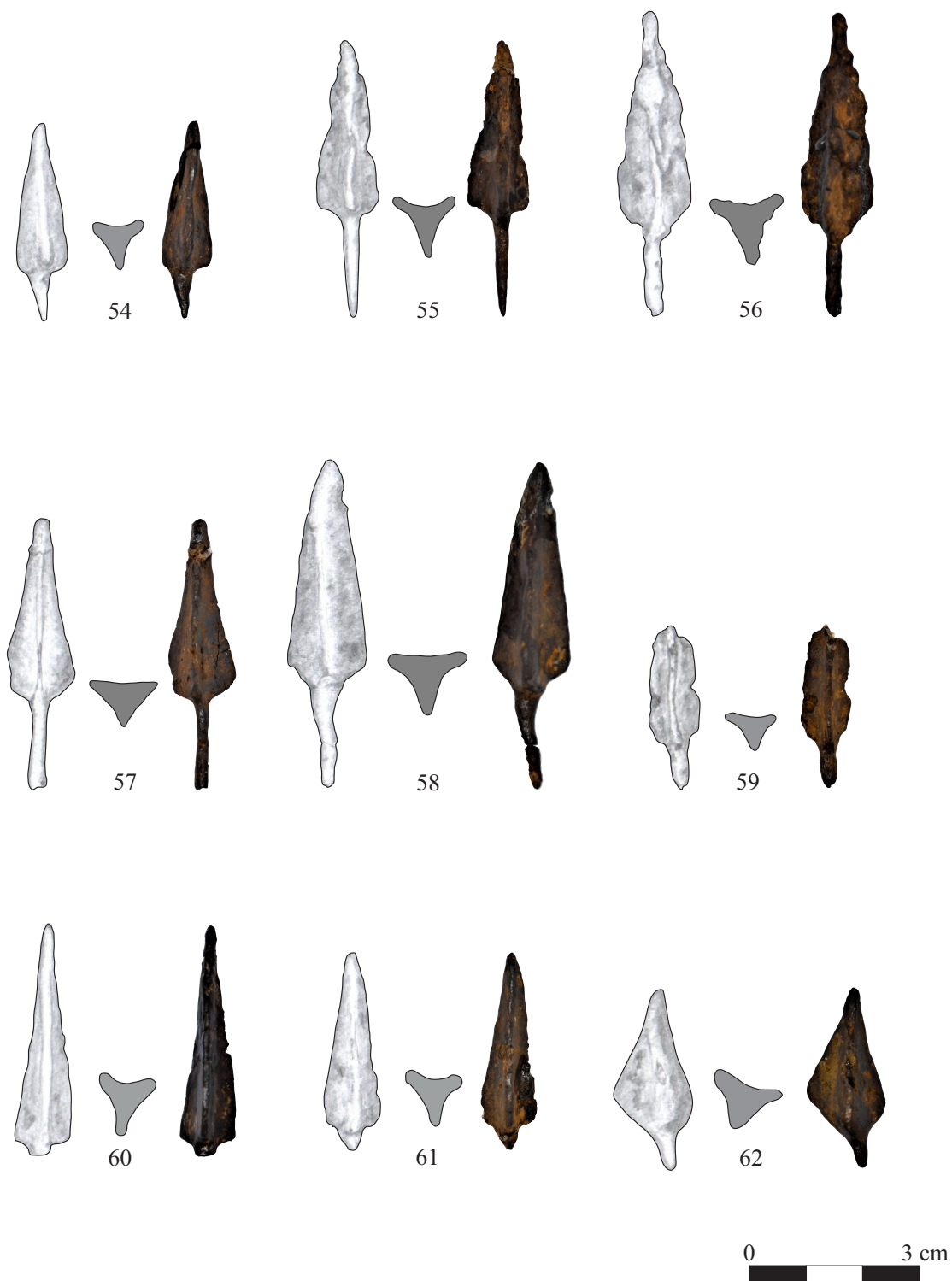
Pl. V. Trilobate arrowheads type Zanier 2 (Cat. 26–34).



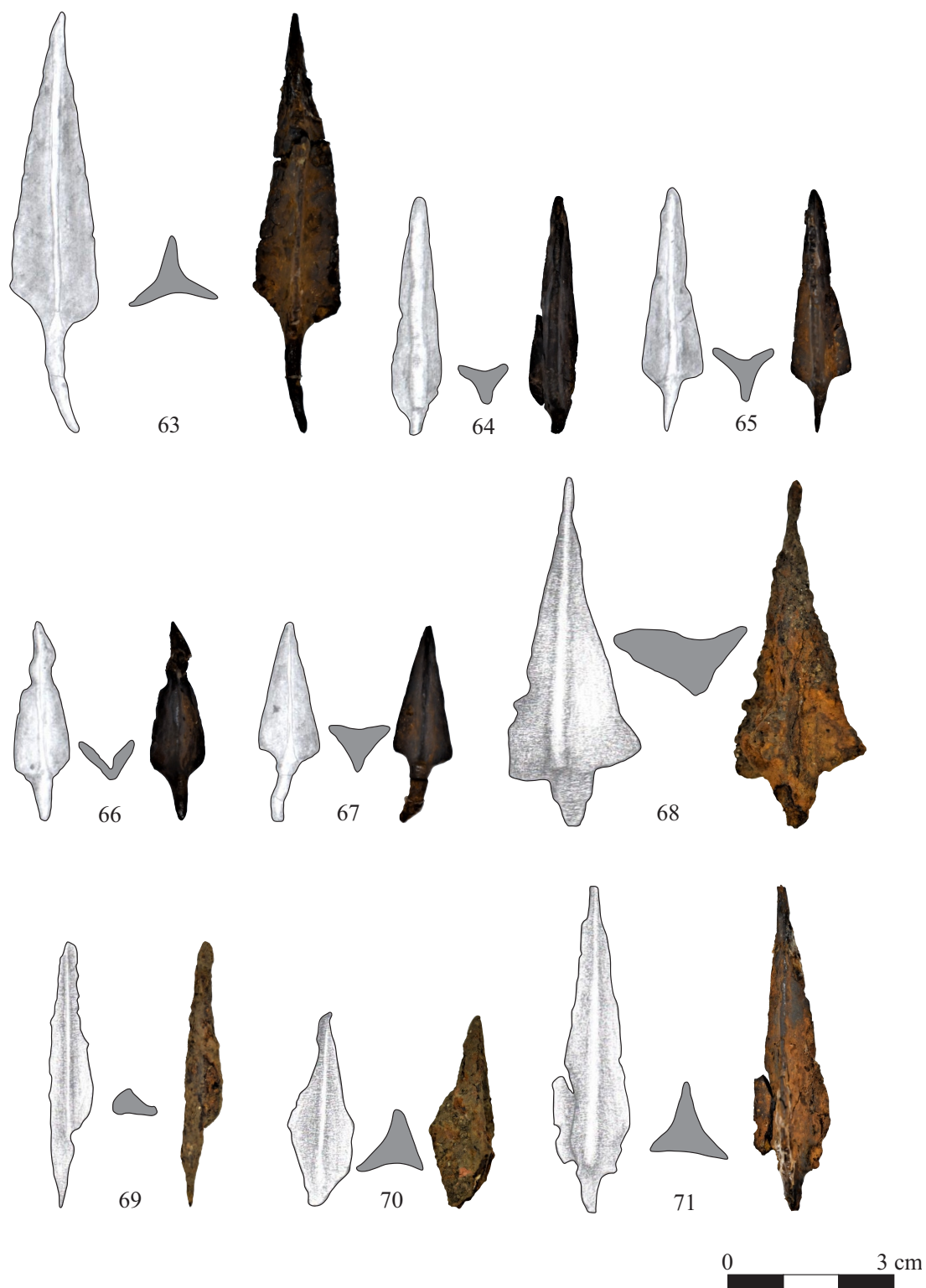
Pl. VI. Trilobate arrowheads type Zanier 2 (Cat. 35–43).



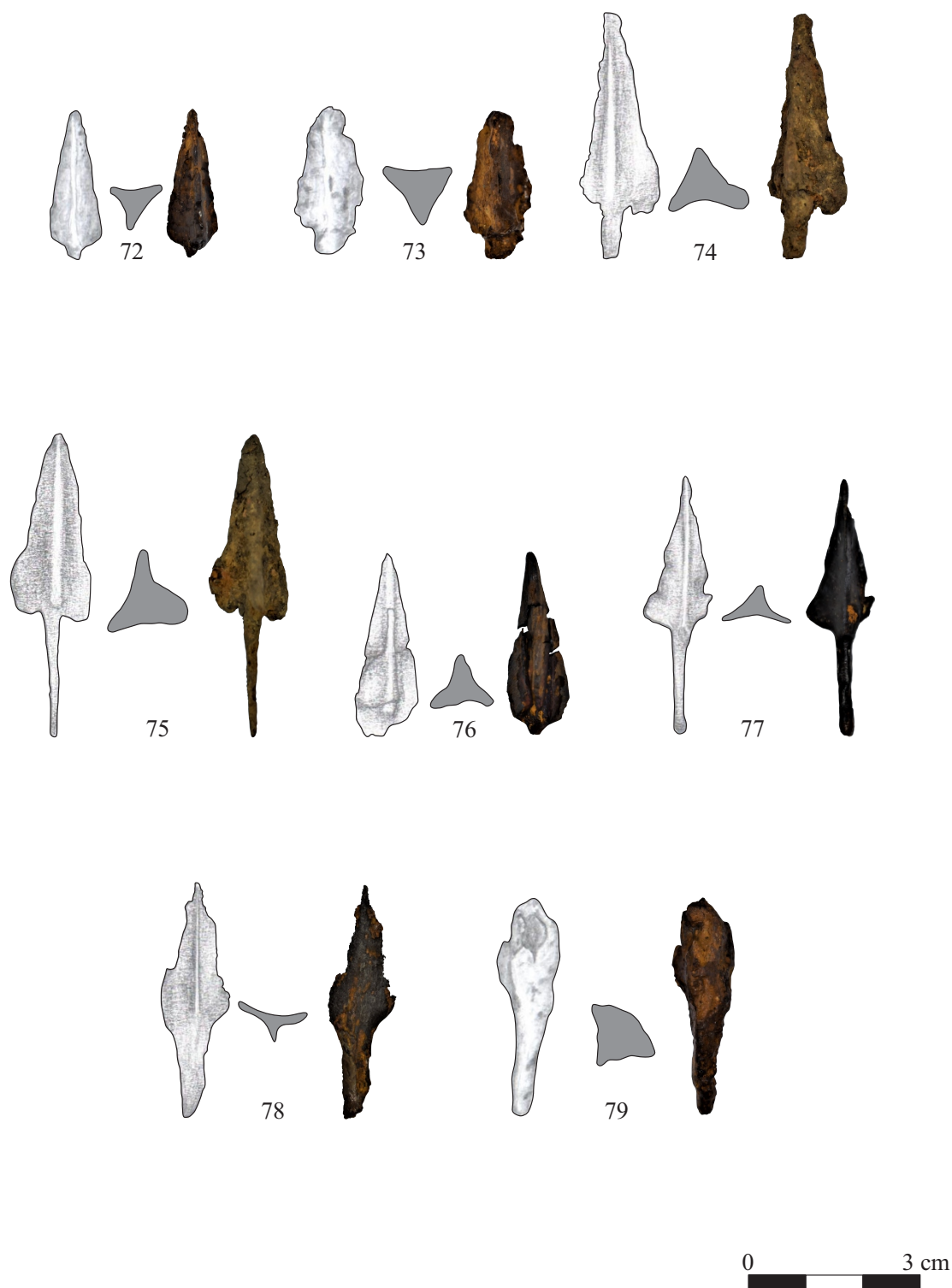
Pl. VII. Trilobate arrowheads type Zanier 2 (Cat. 44–53).



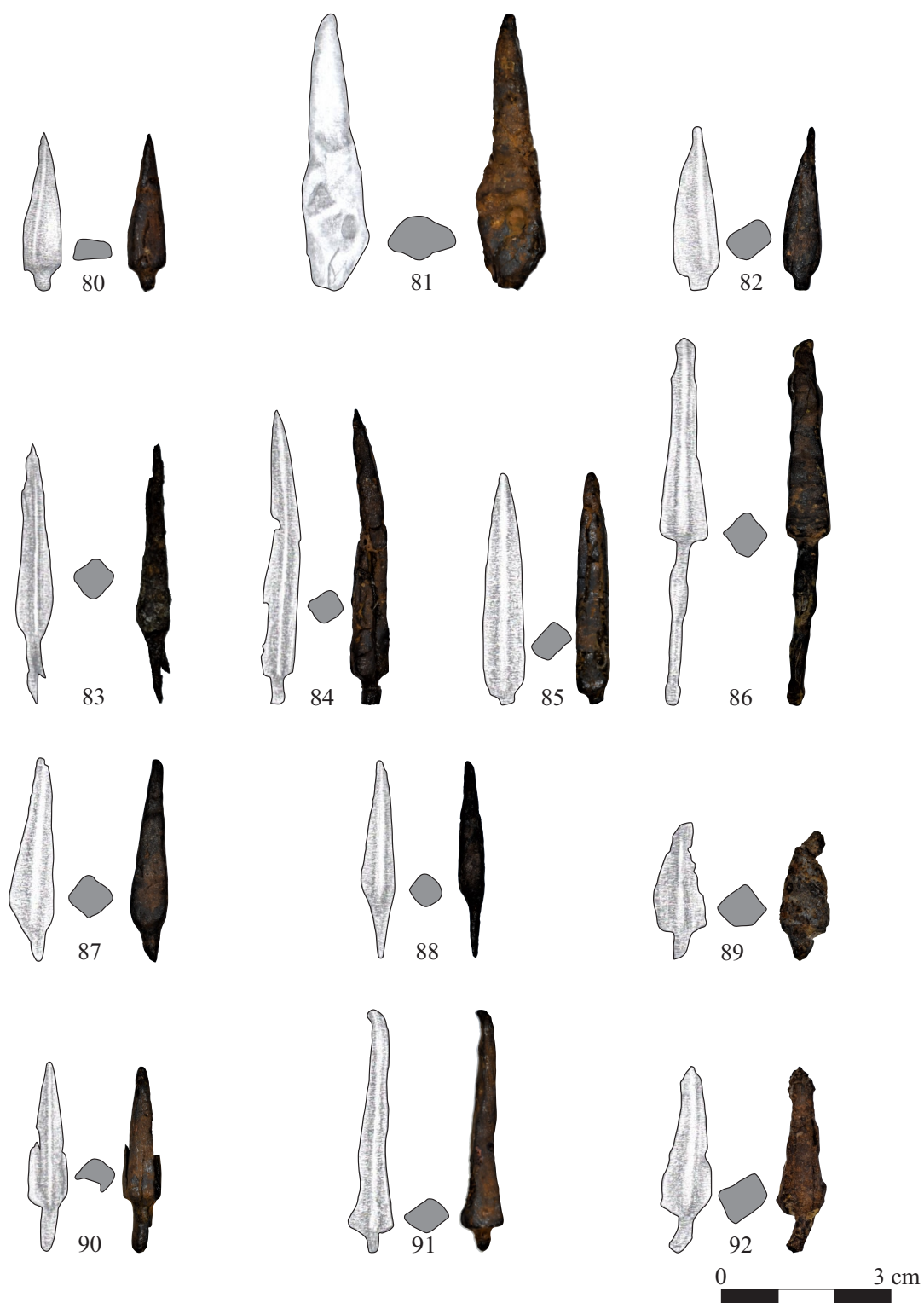
Pl. VIII. Trilobate arrowheads type Zanier 3 (Cat. 54–62).



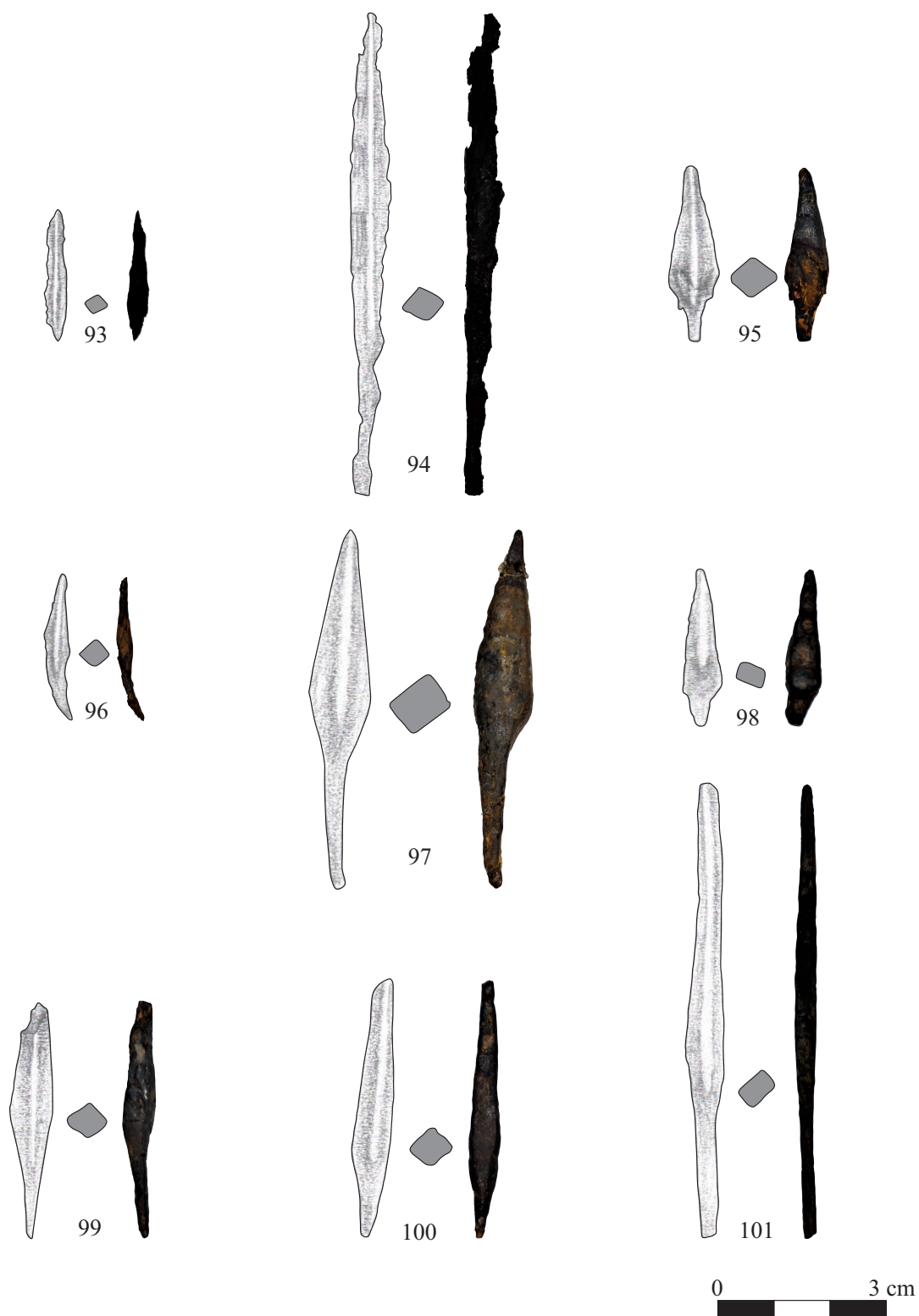
Pl. IX. Trilobate arrowheads type Zanier 3 (Cat. 63–71).



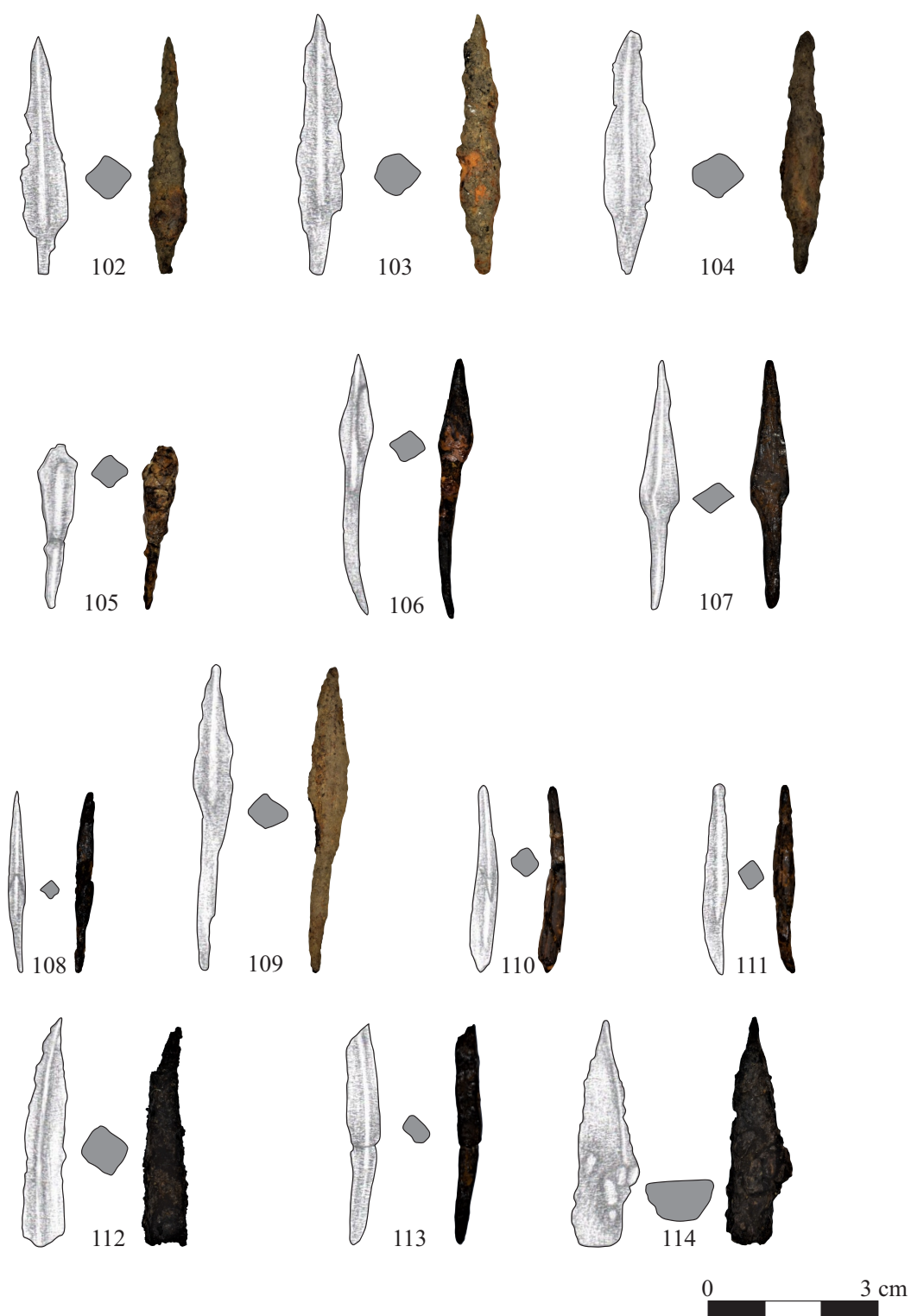
Pl. X. Trilobate arrowheads type Zanier 3 (Cat. 72–78); trilobate arrowhead (Cat. 79).



Pl. XI. Bodkin arrowheads type Gudea SAB3 (Cat. 80–82); Gudea SAB6 (Cat. 83–92).



Pl. XII. Bodkin arrowheads type Gudea SAB7 (Cat. 93–101).



Pl. XIII. Bodkin arrowheads type Gudea SAB7 (Cat. 102–111); bodkin arrowheads (Cat. 112–114).



Pl. XVI. Flat bladed arrowheads type Gudea SAA2 (Cat. 115); Gudea SAA3 (Cat. 116–119).

READY TO BE RECYCLED? A FRAGMENT OF A MILITARY DIPLOMA FROM CĂLUGĂRENI / MIKHÁZA (DACIA SUPERIOR)

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The present paper discusses a military diploma fragment discovered in the principia of the auxiliary fort at Călugăreni / Mikháza on the eastern limes of Dacia superior, in the destruction layers related to one of the weapon deposits (armamentarium). The fragment of the diploma dates between 133 and 142 AD. Taking into account the perfect cut, which was obviously intentional, and the late 3rd century AD context, we can conclude that it was prepared for recycling.

Keywords: *limes*, Dacia superior, *principia*, military diploma, witness

Cuvinte-cheie: *limes*, Dacia superior, *principia*, diplomă militară, martor

Călugăreni / Mikháza, located in Mureș / Maros County, Romania, is one of the major Roman military sites in Eastern Transylvania, situated in the south-western part of the modern village. It extends along the left bank of the Niraj / Nyárád River, benefiting from the natural defence provided by the Gurghiu / Görgényi Mountains and the hills of the Subcarpații Târnavei Mici / Sóvidéki dombság. Along with a series of watchtowers and other defensive structures located to the east, it was tasked with controlling the Roman frontier sector around the upper Niraj Valley and the Săcădat / Szakadát Valley, where the presumed ancient traffic routes to the *Barbaricum* passed through.

The *cohors I Augusta Ituraeorum* was stationed in the fort from the second–third quarter of the 3rd century AD.¹ The main components of the site: the auxiliary fort (Area A, Area D), the *balneum* (area B) and the surrounding

military *vicus* (Area C, Area ERC 2018) have been systematically investigated in the framework of research excavations (Fig. 1) and rescue excavations (ERA, ERC, CAP, CAB projects).²

The fragment was discovered during the 2024 excavation in the *principia* (Trench A/2024), in context no. 951, and has been recorded under the small find number 13745.³ The context is a collapsed roof of the south-western room of the southern wing of the headquarters building, so we can link the artefact to the latest phase of use of this room (Fig. 2.). Based on corroborated

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¹ For the auxiliary unit, see: PISO–MARCUS 2008; ȚENȚEA 2012, 52–60; MATEI-POPESCU 2014, 207; SIDÓ–ÖTVÖS 2015; MATEI-POPESCU–ȚENȚEA 2016, 10; PETOLESCU 2021, 234–236, no. 50; NAGY–PÁNCZÉL 2024.

² Due to various interconnected projects focusing on the research, conservation, and presentation of the site, aerial archaeological, geophysical, architectural, and topographical surveys, as well as rescue and research excavations have been undertaken at Călugăreni. We would like to thank our colleagues who participated in the field researches and Krisztina Csibi, Katalin Sidó for their help with the illustrations, Zsolt-Szabolcs Nagy, Tihamér András for conserving the artefact. For an overview concerning the state of research at Călugăreni, see: SZILÁGYI–PÁNCZÉL 2023, 45–46, and KOVÁCS 2023; NAGY–PÁNCZÉL 2024 and BÁLINT–PÁNCZÉL 2024 published since.

³ The diploma is part of the Archaeological collections of the Mureș County Museum under the inventory number 18250.



Fig. 1. Layout plan of the archaeological excavations until 2024 (auxiliary fort in turquoise): 1961 excavations in blue; 2004, 2011–2012 excavations in green; 2013–2024 excavations in orange (made by P. Simon and Sz.-P. Pánczél).



Fig. 2. Aerial photo at the beginning of the 2024 excavations in the *principia* (Area A/2024). The room where the fragment of the diploma was discovered is marked in green.

finds,⁴ the function of the room as an *armamentarium* has been confirmed.

It is essential to emphasise that the auxiliary fort and subsequently the *principia* have suffered extensive damage due to modern interventions, including looting and agricultural activities conducted in the area over the past centuries. As a result, the stratigraphic layers corresponding to the latest Roman occupation phases are only partially preserved and can be documented to a limited degree. The majority of the documented demolition and destruction layers of the *principia* can be dated to the second–third quarter of the 3rd century AD, related with the collapse of the Roman rule in Dacia.

There is a fragment from the top right quarter of *tabella II* of a diploma. Height 5,64 cm; width 6,2 cm; thickness 0.8 mm; weight 18.68 g. The lettering is well cut and clearly legible. The inner face bears no script. The letter height is 0.6 cm, the upper and the

⁴ PÁNCZÉL–LUKÁCSI 2019, 417; NAGY–PÁNCZÉL 2024, 62.



Fig. 3. The military diploma fragment from Călugăreni.

left edges show well-defined borders with one and two framing lines respectively. A green patina covered the entire fragment. The *tabella* was cut into four quarters, probably in order to be recycled. The *cognomina* of the first three witnesses are preserved as follows:

[Ti. Claudi]	Menandri	103–142 AD (RMD VI, 249, 256)
[L. Pulli]	Daphni	122–148 AD (RMD VI, 251, 256)
[P. Atti]	Severi	123–148 AD (RMD VI, 249, 255)

At first glance the diploma dates between 123 and 142 AD, therefore it was copied after a constitution issued either by Hadrian or by Antoninus Pius in his very first years of reign. The witnesses appeared together, but with *P. Attius Severus* in second place, on diplomas between 133 and 142 AD.⁵ Up to this moment there is

⁵ Both in the Period 2 and 3: CIL XVI 76 (Pannonia superior, 133 AD); CIL XVI 79 (*classis Misenensis*, 134

no other attestation of the sequence in the *collegium* as it appears on this fragment, with *L. Pullius Daphnus* in second place, followed by *P. Attius Severus*. Moreover after *Menander* was no longer part of the *collegium*, *P. Attius Severus* climbed to first place, followed by *L. Pullius Daphnus*.⁶ He appears in second place after *Ti. Claudius Menander* on one fragment, but is

AD); AE 2017, 1762 (Moesia superior, 135 AD); CIL XVI 83 (Moesia inferior, 138 AD); RMD I 38 (Lycia et Pamphylia, 139 AD); CIL XVI 87 (Syria Palaestina, 139 AD); RMD VI 570 (*classis Ravennatis*, 139 AD); RMD I 39 = IDR I DiplMil 13 (Dacia inferior, 140 AD); RMD I 40 = RMD V, 917 = IDR I DiplMil 23 = ILD 9 (Dacia Porolissensis, 138–142 AD); RMD IV 264 and RMD V 392 (*classis Ravennatis*, 142 AD); RGZM 29 (Syria Palaestina, 142 AD).

⁶ E. g. RGZM 30 = RMD IV 266 (Pannonia inferior, 143 AD); RMD V 398 (Mauretania Tingitana, 144 AD); AE 2014, 1675 (Syria, 144 AD); AE 2015, 1904 (*equites singulares Augusti*, 144 AD); RMD I 44 (Asia, 145 AD); AE 2019, 1222 (Pannonia superior, 145 AD); RMD II 99 (Noricum?, 146 AD); CIL XVI 178 (Pannonia inferior, 146 AD).

followed by another witness, *Ti. Claudius Chresimus*.⁷ It seems that when the three appeared together, the sequence was observed. The reason why the sequence is different on this diploma remains unclear, there was probably a mistake.

On the majority of the diplomas where these three witnesses appear in first place, they are followed by: *P. Attius Festus*, *T. Flavius Laurus*, *Ti. Iulius Felix* and *C. Iulius Silvanus*, but other witnesses also appear, for instance *T. Flavius Romulus*⁸ or *M. Sentilius Iasus*⁹ instead of *T. Flavius Laurus*, to give only one example. Thus, it is

impossible to restore the entire list of witnesses on this diploma.

Based on the discussion above, we can assume that the fragment of the diploma dates between 133 and 142 AD. Taking into account the perfect cut, which was obviously intentional, and the later context of the *armamentarium* from the 3rd century AD, we can assume that it was prepared for recycling or melting. It is impossible to tell whether the diploma was issued to a veteran of the *cohors I Augusta Ituraeorum*, although it seems to be the case.

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NOTES ON THE HISTORIOGRAPHY OF *TERRA SIGILLATA* RESEARCH IN ROMAN DACIA

Bernadett KOVÁCS*

The study of terra sigillata pottery in our region is still in its infancy since so little information from the province of Dacia has been published so far, much of it being incorporated into bigger syntheses along with the analysis of other kinds of Roman pottery. We can observe how the quality of research has improved over the decades (beginning in the first half of the 20th century) and how the quantity of the finds has increased since then. The concept of terra sigillata as a dating tool in archaeology should no longer be the only aspect discussed in the literature. However, in order to achieve a relevant result, the publication's methodology can be just as significant as its content. This paper employs a methodological perspective to identify distinguishing characteristics, errors and approaches in the historiography of terra sigillata research in Roman Dacia.

Keywords: *terra sigillata*, historiography, Dacia, material culture, overview.

Cuvinte-cheie: *terra sigillata*, istoriografie, Dacia, cultură materială, sumar.

As a defining characteristic of Roman archaeology, *terra sigillata* is frequently encountered by specialists, with an increasing number of fragments being excavated. Simultaneously, its scientific significance has been firmly established. There are some issues raised by its research that have not yet been addressed in our region, and for the answers to these concerns, we must overview the historiography, since the importance of the approaches taken to these vessels and the methods in which they were subsequently communicated with the scientific community is just as significant as the information gained from the vessels themselves.

The study of *terra sigillata* differs somewhat from the study of regular Roman pottery sherds, for which a variety of descriptions, manuals, and instructions are available. On the one hand, it is critical to examine them with distinct methods, since we can rightly regard these vessels as being to some extent homogeneous¹ and they may have

played a different role in Roman everyday life in terms of their essence, material, and possibly even function. Despite this, it has been studied and published with other pottery types, and only recently have we seen more publications devoted to it exclusively.

The goal of this paper is to review the historiography of *terra sigillata* research regarding Dacia in chronological order, supplementing it with observations as needed and thus contributing to the advancement of research on this type of pottery. We will then be able to examine the progress and current state of research on the subject. To that end, we'd like to briefly describe the methodology that has been adopted and implemented in other regions to extract the most useful information.

Terra sigillata can place various contexts or even sites in a more limited historical time frame.² By specifying the origin of these ves-

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¹ VAN OYEN 2016, 5.

² For the possibilities and problems of dating *terra sigillata* and some of the patterns already identified and accessible, see: HAVERFIELD 1911; RITTERLING 1913, 67–76;

sels, one can date them in a broader sense, i.e. the operation period of a production centre.³ As we know, these types of pottery differ from ordinary ones due to the material and slip used. As with other types of material, the texture of the clay in many cases reveals the location of the workshop.⁴ Archaeological investigations at these sites, as well as research into Roman trade routes, have helped us learn about these centres.⁵

By analysing the slip (colour, brightness, feel, etc.) and the texture of the clay (whether it's grittier or smoother, etc.), we can, in most cases, determine its place of origin. We can also examine the decorative motifs on the relief to establish the workshops.⁶ Here, the process is a bit more intricate as we have a wide variety of decorations,⁷ which were typically used on common Roman pottery, stamped pottery,⁸ lamps⁹ and other categories as well. The most frequently used motifs are listed in the literature, indicating the craftsmen who used them. The difficulty is that some ornaments are present in more than one workshop and over longer periods. Moulds and stamps are also often borrowed, sold, or copied.¹⁰ This is where the importance of stamps with the names of craftsmen comes into play, which often helps us in the identification. Today, numerous books, catalogues, and online databases assist us in recognising the distinctive "typeface" of a particular potter, allowing us to determine who, when and where made the pot.¹¹

The illustration is of particular importance in

the publication of archaeological material. Given the definition of the type and, more importantly, the recognisable nature of the various decorative elements, it could be argued that in the case of *terra sigillata*, it is probably even more essential than usual. The interpretive options provide a clear explanation of why we need to see these particular decorative elements or the type itself. The drawing, photo or 3D scanning options using the most recent technology all strive (or should have striven) for the most accurate representations as a key component of the research method. Its importance, historical background and precisely designed practical method has been published recently.¹² Perhaps the most important is the discussion of what we are looking for in the published illustration and why. Primarily, the alternation or stagnation of style from period to period provides useful information about different consumption patterns, market demands, and historical-territorial connections.¹³ To get this information, we need to create accurate and understandable illustrations, for even a small detail can be meaningful.¹⁴

The focus on *terra sigillata* research and perception of this archaeological find has evolved.¹⁵ Although the series of publications using the additive model are still being written (which is necessary), it is now possible to come up with broader interpretations and switch from a quantitative to a more qualitative one.¹⁶

THE RESEARCH CONCERNING DACIA

The publication of *terra sigillata* as a distinct vessel type starts rather late regarding Dacia, taking up already existing patterns. We can't find specialised research before the 1970s; in fact, it is mostly mentioned in archaeological reports. The concept can be said to be consistent: data reporting. The earliest archaeological

ATKINSON 1914, 29–32; OSWALD–PRYCE 1920, 144–169; OSWALD 1931; OXÉ 1933, 1–2; KNORR 1952; RICKENFISCHER 1963; GABLER 2006, 121–151; WEBER 2013, 26–37; VAN OYEN 2016, 26–28.

³ WEBER 2013, 6–24.

⁴ See: TOMBER–DORE 1998.

⁵ WAAGÉ 1937, 46–55; KRIZEK 1961, 35–43; VERTET 1967, 255–286.

⁶ BÉMONT–JACOB 1986; OSWALD–PRYCE 1920, 3–39; WEBER 2013, 6–18.

⁷ DÉCHELETTE 1904; OSWALD 1936.

⁸ DÉCHELETTE 1904, 133–134.

⁹ RUSU-BOLINDEȚ–BOTIȘ 2018, 147, 241, 243.

¹⁰ GABLER 2006, 34–43.

¹¹ See mainly: OXÉ ET AL. 2000; DANNELL ET AL. 2003; HARTLEY ET AL. 2008–2012; ALLEN 2013, 49–65; FULFORD–DURHAM 2013.

¹² BIDDULPH 2014.

¹³ WILD 2014, 5–11.

¹⁴ WILD 2014, 9.

¹⁵ VAN OYEN 2016, 20–31.

¹⁶ VAN OYEN 2016, 4–6.

record we are noting is that of Béla¹⁷ Cserni,¹⁸ who published *sigillata* vessels among the finds of his excavations at Apulum.¹⁹ He remarked a building that later turned out to be a workshop and the presence of various kilns, ceramic waste and moulds.²⁰ With the help of W. Barthel, who also suggested to Cserni the literature available on the topic, it was later established that there was indeed an *officina* in Apulum.²¹ Although Cserni's work was published much earlier than the actual research on *terra sigillata* in our region, he was perhaps the first to publish decorated pieces noting that he did not provide details only because of space limitations.²² He lists the series of Dragendorff, Hölder and Koenen and briefly presents the general development and characteristics of Roman pottery.²³ He explains that he has only included the decorated ones, but there are 50 times as many undecorated fragments from Apulum.²⁴ No interpretation or conclusion is expressed on the *sigillata*, sticking to the general nature of archaeological reports.

Vasile Christescu's gate-opening paper from 1929²⁵ will later be referred to as the first publication on the economic life of Dacia. It presents a diverse assortment of archaeological materials.²⁶ We are referring to the stamped pottery in this case.²⁷ Even though it's quite unlike *terra sigillata*, its appearance suggests that the different types of pottery were already separated in publications according to the preparation method. However, it makes a passing reference to the

terra sigillata, indicating a regional manufacture and the presence of a workshop in Apulum where imitations might have been produced.²⁸ Although the publication contained a technical analysis and began to identify production centres, the question of local manufacturing was still speculative at the time. Although it seems that information on the *terra sigillata* is still scarce, we can mark an awakening interest in the topic.

In 1953, the excavations from Sucidava were published,²⁹ and a *terra sigillata* imitation was mentioned³⁰ with no particular description and a rudimentary illustration, the scale of which is confusing to contemporary eyes (Fig. 1).³¹ The same publication reports about the excavation of a *villa rustica*,³² mentioning *sigillata* fragments without any description or illustration. The term is used once more among epigraphic and sculptural finds,³³ merely referring to the fabric, not to certain vessels in particular. The composition of this specific type of clay referred to as *terra*

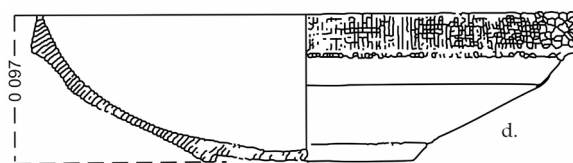


Fig. 1. *Terra sigillata* imitation from Sucidava, unknown type (TUDOR 1953, 711, Fig. 13/d).

sigillata is not reported and only the suggestion of a local manufacture is made by the author. Another report from the same year mentioned a *terra sigillata* fragment,³⁴ simply describ-

¹⁷ Known also as Albert or Adalbert.

¹⁸ CSERNI 1912.

¹⁹ CSERNI 1912, 274–276, fig. 15–18.

²⁰ He wrote to F. Drexel and requested assistance, therefore he was the first to suggest that there might have been a pottery workshop in Partoș which should be identified and that it was important to treat this type of artefact separately from the others (EGRI 2018, 115).

²¹ ISAC 1985, 5.

²² CSERNI 1912, 266.

²³ CSERNI 1912, 279, DRAGENDORFF 1895.

²⁴ CSERNI 1912, 279.

²⁵ CHRISTESCU 1929.

²⁶ CHRISTESCU 1929, 64–72.

²⁷ CHRISTESCU 1929, pl. I/3, III/2–6, IV/1, 3–4. The author attributes this type of pottery to the Celts, who possibly adopted it from the populations of the Balkan Peninsula and Asia Minor in the Hellenistic period (CHRISTESCU 1929, 64–72).

²⁸ CHRISTESCU 1929, 65–66, pl. I/3.

²⁹ TUDOR 1953, 693–743.

³⁰ TUDOR 1953, 712.

³¹ We are not sure that the height of the vessel is actually relevant in this case, as its diameter remains unknown, its true size is also undetermined, and so is the type. Since it is an imitation, we can hardly get more data about how it actually mimics the original *terra sigillata*, since the quality of its fabric has not been investigated or discussed. Moreover, from a formal viewpoint, a defined type would convey more information than the drawing.

³² FLOCA 1953A, 750.

³³ FLOCA 1953B, 771.

³⁴ HOREDT 1953, 785–815.

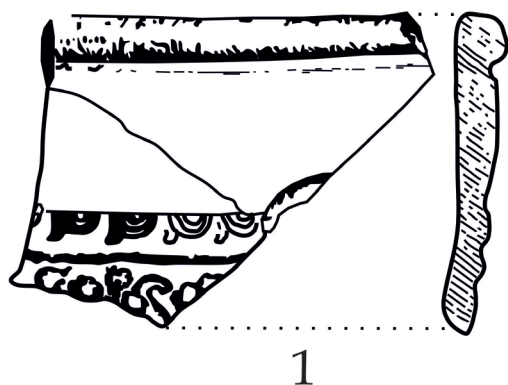


Fig. 2. Drag. 37 bowl fragment from the Hoghiz-Ugra and Teiuș regions (HOREDT 1953, 795, Fig. 7/1).

ing its appearance,³⁵ illustrating it plainly, and referring to the size of the fragment as “natural size” instead of a scale (Fig. 2).³⁶ Given the fact that we are speaking about a general phenomenon of these years, we will simply note the other references.³⁷ In each case, they only indicate the presence of *terra sigillata* fragments, following the additive model mentioned above.

THE 1960–1970S: RISE OF INTEREST

During the 1960s we primarily observe archaeological reports, with no detailed descriptions and just a few illustrations of the *sigillata* fragments.³⁸ An excavation report from 1962 serves as an example.³⁹ The drawings provide most of the information on the pieces, whereas the text only indicates their existence.⁴⁰ The description doesn't specify whether the vessels were manufactured locally or imported. For a long time, this remained the usual scenario for archaeological reports. However, the rudimentary character of the drawings should be underlined (Fig. 3), as the

fact that the *terra sigillata* pot fragments are referenced only as a record.

The beginning of systematic research on the topic can be dated to the early 1970s. The first publication to be mentioned is Gheorghe Matei Popilian's work on locally made *terra sigillata* imitations found in Romula.⁴¹ From a structural aspect, the study complements a series of publications that take a more technical and analytical approach. It provides a lot of information that will be used as reference later on. He mentions the inferior quality of the locally made imitations compared to those of the western provinces⁴² and republishes the piece published by D. Tudor with more precise information. The article is comparative in nature, using the finds from Butovo as reference. Although further investigation of the evidence from both sites is advised, he offers some initial conclusions and suggests dating possibilities.⁴³ It begins to distinguish clay types for locally made *sigillata*⁴⁴ and highlights the necessity of international cooperation in this field.⁴⁵

The same author published a particularly significant work four years later,⁴⁶ not only on *terra sigillata*,⁴⁷ but on all kinds of Roman pottery found in Oltenia. He highlights the importance of the imported ware, even if relatively few were available at that time.⁴⁸ By integrating a preliminary contextual analysis, he points to its importance, also discussing the dating possibilities of *terra sigillata*.⁴⁹ By listing the potters identified thus far and the probable period of their activity, he underscores the idea that in many situations we are dealing with groups of craftsmen, rather than individuals.⁵⁰ The statistical aspect of the study is also momentous, for it aims to determine the proportion of each

³⁵ HOREDT 1953, 796.

³⁶ HOREDT 1953, 795, fig. 7/1.

³⁷ POPESCU 1956, 162, fig. 116/1, 3, 5–6, 8; FLORESCU ET AL. 1957, 111; MACREA 1957, 130; DAICOVICIU ET AL. 1959, 352.

³⁸ TUDOR 1962, 550; TUDOR-BUJOR 1962, 558; TUDOR 1970, 282, 290–292.

³⁹ SZÉKELY 1962, 330–335.

⁴⁰ SZÉKELY 1962, 330, fig. 5.

⁴¹ POPILIAN 1972. He also cites the previously mentioned V. Christescu and D. Tudor in his study: POPILIAN 1972, 145.

⁴² POPILIAN 1972, 146.

⁴³ POPILIAN 1972, 155–160.

⁴⁴ POPILIAN 1972, 160.

⁴⁵ POPILIAN 1972, 161.

⁴⁶ POPILIAN 1976.

⁴⁷ Imported wares: POPILIAN 1976, 23–37; local production: POPILIAN 1976, 57–66.

⁴⁸ POPILIAN 1976, 23–24.

⁴⁹ POPILIAN 1976, 24.

⁵⁰ POPILIAN 1976, 27, Footnote 54.

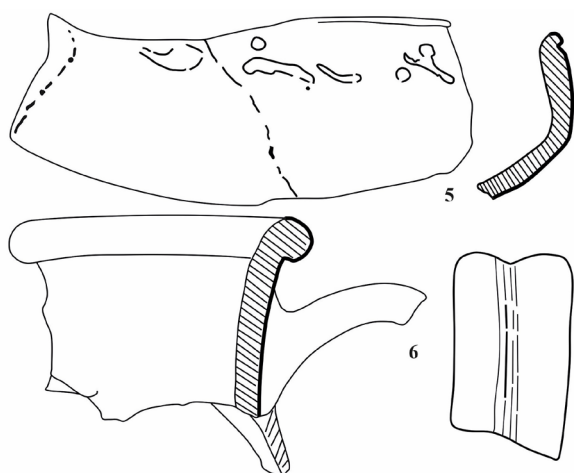


Fig. 3. *Terra sigillata* fragments among common pottery from Sărățeni and Baraolt (SZÉKELY 1962, 330, Fig. 5).

officina's products.⁵¹ In reaching his conclusions, he makes observations that are still common among researchers in our region, such as the logical assumption that imported goods are not always actually imported but are frequently fetched into the province by soldiers and colonists.⁵² As for the imitations, he not only mentions them, but also suggests a possible reason for the beginning of their production, using a mould as evidence.⁵³ The comparison with the Butovo material comes up again, but he also looks for other analogies and several sources of inspiration for the decorative elements. The work is of the analytical-comparative type, particularly detailed, while the illustrations seem to be clearer, since the decorative elements are more precisely visible, making it easier to identify and recognise stylistic features (Fig. 4).⁵⁴

Dan Isac's study from the same year should also be mentioned, as it takes a similar approach to the *terra sigillata* from Orșova.⁵⁵ It reports the artefacts from a rescue excavation, indicating cause-and-effect relationships concerning

the imports from Westendorf.⁵⁶ Accompanied by detailed illustrations (Fig. 5), the analysis examines the products of two craftsmen and identifies the potter while describing the production centre.⁵⁷ From an economic and historical standpoint, the mention and analysis of export and import routes are particularly noteworthy, as they open up new opportunities for further research.⁵⁸ Although it is about a single fragment and, by his admission, it is too early to draw any conclusions⁵⁹, he has extracted every available information on the material. In doing so, he emphasises the scientific significance of even a single fragment. The interpretation on context, function and patterns is minimal, yet Isac regards the topic as an open question requiring further investigation.⁶⁰

The following year Popilian published an article on the imported *terra sigillata* in Dacia.⁶¹ He states that he still cannot draw any definitive conclusions, emphasising the importance of the publication of this type of pottery in general.⁶² It is an informative paper that does not claim to be exhaustive but addresses key matters, as the

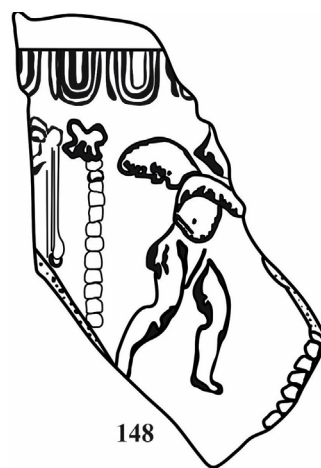


Fig. 4. Imported Drag. 37 bowl fragment from Oltenia (POPILIAN 1976, Pl. X/148).

description of the production centres, the historical background, the decorative elements and the mention of the potters.⁶³ The article's structure is difficult to comprehend, since the data is presented in a condensed form, in sequential order, interspersed with illustrations, which seem to be more numerous than

⁵¹ POPILIAN 1976, 28.

⁵² Although it was later suggested that the military were not the first to bring these products to the province, they may have been the first consumers (ISAC 1985, 50).

⁵³ POPILIAN 1976, 57–58.

⁵⁴ There are no significant traces of beautification or distortion, shading or artistic intervention, thus the stylistic features of a potter are easier to recognise and we see a historically more authentic representation.

⁵⁵ ISAC 1976.

⁵⁶ ISAC 1976, 169.

⁵⁷ ISAC 1976, 170–172.

⁵⁸ ISAC 1976, 173–174.

⁵⁹ ISAC 1976, 173.

⁶⁰ ISAC 1976, 173–175.

⁶¹ POPILIAN 1977.

⁶² POPILIAN 1977, 343.

⁶³ POPILIAN 1977, 343–344.

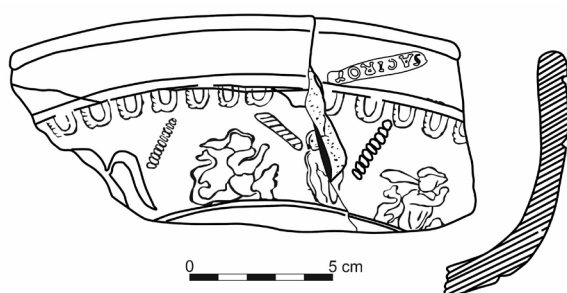


Fig. 5. Drag. 37 bowl from Orșova (ISAC 1976, 170, Fig. 1).

before.⁶⁴ However, the fragmented character of the information does not diminish its scientific worth and there appears to be a growing interest in the developing illustrations as well.⁶⁵

The next survey is Nicolae Gudea's work, which is not expressly specialised on the *terra sigillata* type, but mentions it in a general study on pottery manufacture in Dacia.⁶⁶ He emphasises the importance of publishing these⁶⁷ and describes the types known so far.⁶⁸ He states that little material has been published, despite the fact that manufacturing centres are proven by the kilns discovered. Information on where workshops are known to exist at the moment, as well as on the influence of military environments on their development are also included. He refers to important sources of earlier knowledge and provides a database-like record of them.⁶⁹ Although he only refers to *terra sigillata* types and mentions a few *sigilla*, the general analysis of pottery production may be equally relevant to us, given that it presents broad issues and gaps that we need to address.

From the 1970s we remark a paper that presents a somewhat newer perspective on *terra sigillata* research from Apulum.⁷⁰ It highlights the value of contextual analysis (while it attempts to describe excavations and specific archaeological contexts), howbeit it is less

successful in discovering correlations.⁷¹ The publication's division by production centres makes it much clearer and more consistent structurally. Several undecorated vessels are presented and a comment is made on the fact that there are many more locally produced imitations than previously thought – with comments on the history of research to support this,⁷² also taking a kind of critical view of previous publications⁷³ and setting a chronology of production centres.⁷⁴ The series of annotations, analogies and illustrations are also more systematic (Fig. 6), taken from a typological perspective that allows for various further conclusions.⁷⁵ The use of the catalogue and its improvement is also notable, albeit merged with the illustration tables.⁷⁶

The tendency to publish data in an informative, additive manner, as well as the approach to develop and put into practice the demand for interpretation and the processing of more and more finds are common in these decades, intending to produce a major, comprehensive and definitive research result applicable to the entire province.

THE 1980S: STRENGTHENING THE EXISTING, HIGHLIGHTING THE GAPS

An article from 1980 classifies finds according to archaeological sites,⁷⁷ data reporting and basic interpretation are supplemented by contextual analysis. It examines the operation of the production sites of the imported wares from a historical-interpretive perspective.⁷⁸ As types become more easily identified and recognised, the practice of quantitative analysis emerges. The illustrations and the arrangement of the catalogue also appear to be more

⁶⁴ POPILIAN 1977, 345–349.

⁶⁵ POPILIAN 1977, 343.

⁶⁶ GUDEA 1978.

⁶⁷ GUDEA 1978, 135.

⁶⁸ GUDEA 1978, 135–136.

⁶⁹ GUDEA 1978, 136–140.

⁷⁰ ISAC ET AL. 1979.

⁷¹ ISAC ET AL. 1979, 227.

⁷² ISAC ET AL. 1979, 233–237.

⁷³ ISAC ET AL. 1979, 228.

⁷⁴ ISAC ET AL. 1979, 229–230.

⁷⁵ We note that the illustration is not always consistent, the decoration is drawn only when depicting the rim, which can be confusing in interpreting whether it was actually present or not.

⁷⁶ ISAC ET AL. 1979, 230–263.

⁷⁷ ISAC 1980.

⁷⁸ ISAC 1980, 468–469.

streamlined (Fig. 7).⁷⁹ A study on *terra sigillata* from Porolissum, published in the same year, raises the question of whether field records can later affect pottery sherd identification.⁸⁰ The article separates decorated and undecorated vessels and catalogues are used to identify decorative elements.⁸¹

Dan Isac published a new study in 1981,⁸² discussing the *terra sigillata* finds from Tibiscum, emphasising again the importance of research on the subject.⁸³ Structurally, the article is similar to those previously reviewed, dividing imported and locally produced vessels.⁸⁴ More mentions refer to locally produced imitations, for instance, he publishes a mould that, depending on the archaeological context, might indicate the existence of a workshop, on which all data is missing. The paper is enriched with analogies and historical explanations, already fitting well into the analytical-comparative studies of the period.

Subsequent years saw the emergence of similar studies, suggesting that scholars began to devote increasing attention to the topic. The one that we will discuss next⁸⁵ analyses the imported wares in Dacia from a slightly different perspective. It does not examine all the imports present in Dacia, but only those from Rheinzabern and Westerndorf. It underlines the need to research and recognise the *terra sigillata* type separately from other kinds of Roman pottery.⁸⁶ It mentions previously discovered *terra sigillata* fragments from before the Roman conquest, indicating a pre-existing trade.⁸⁷ The study not only investigates the destinations of the two production centres' exports to Dacia, but also offers a

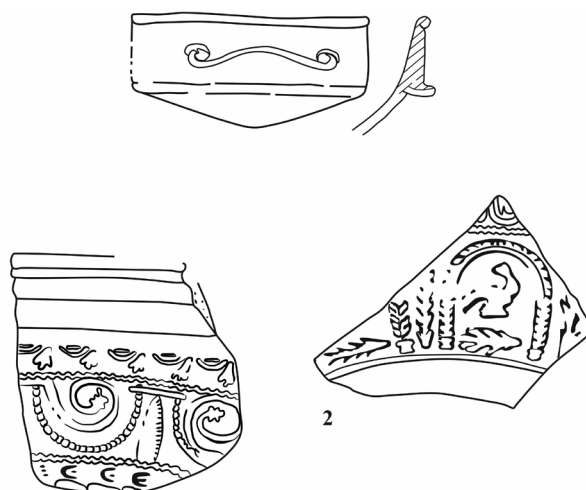


Fig. 6. *Terra sigillata* fragments from Apulum (ISAC ET AL. 1979, 240, Pl. I/1 – top 2 – left, 3 – right).

map showing trade routes across the many sites where the finds were discovered.⁸⁸ The publication proposed an adaptive interpretation of the vessels, using the artefact as a tool to extract new economic-historical data. Its conclusions are also innovative. On the one hand, it states that Dacia has fundamentally less *terra sigillata* than other provinces.⁸⁹ While it is now generally accepted that this assumption is incorrect, the distribution of findings may still be balanced, considering the late start of research and excavations in our region. It does, however, point to the fact that the distribution of imported *terra sigillata* vessels from Rheinzabern and Westerndorf varied across the region.⁹⁰ Further research, statistical analysis and the question whether there is a reciprocal trade or whether the vessels are simply present for other reasons could all help to complement this information.⁹¹ There is an improvement in the quality and precision of the drawings (Fig. 8),⁹² as well as in the precise

⁷⁹ ISAC 1980, 472–481. It seems that drawings of undecorated vessels are becoming more common and strive for uniformity, although the scale is missing. The straightness of the central auxiliary lines is questionable, but it could also be a printing error.

⁸⁰ ISAC–GUDEA 1980, 191–192.

⁸¹ The question of production centres is also addressed. ISAC–GUDEA 1980, 193–195.

⁸² ISAC 1981.

⁸³ ISAC 1981, 109.

⁸⁴ ISAC 1981, 110–113.

⁸⁵ BĂLUȚĂ 1982–1983.

⁸⁶ BĂLUȚĂ 1982–1983, 209.

⁸⁷ BĂLUȚĂ 1982–1983, 209–210.

⁸⁸ BĂLUȚĂ 1982–1983, 210–211.

⁸⁹ BĂLUȚĂ 1982–1983, 209.

⁹⁰ BĂLUȚĂ 1982–1983, 213.

⁹¹ BĂLUȚĂ 1982–1983, 213–215.

⁹² The representation of the types of undecorated vessels has improved in terms of uniformity, although they are not necessarily indicated in the description and we also note that the colouring or shading of certain decorative motifs can be confusing in the identification of stylistic features.

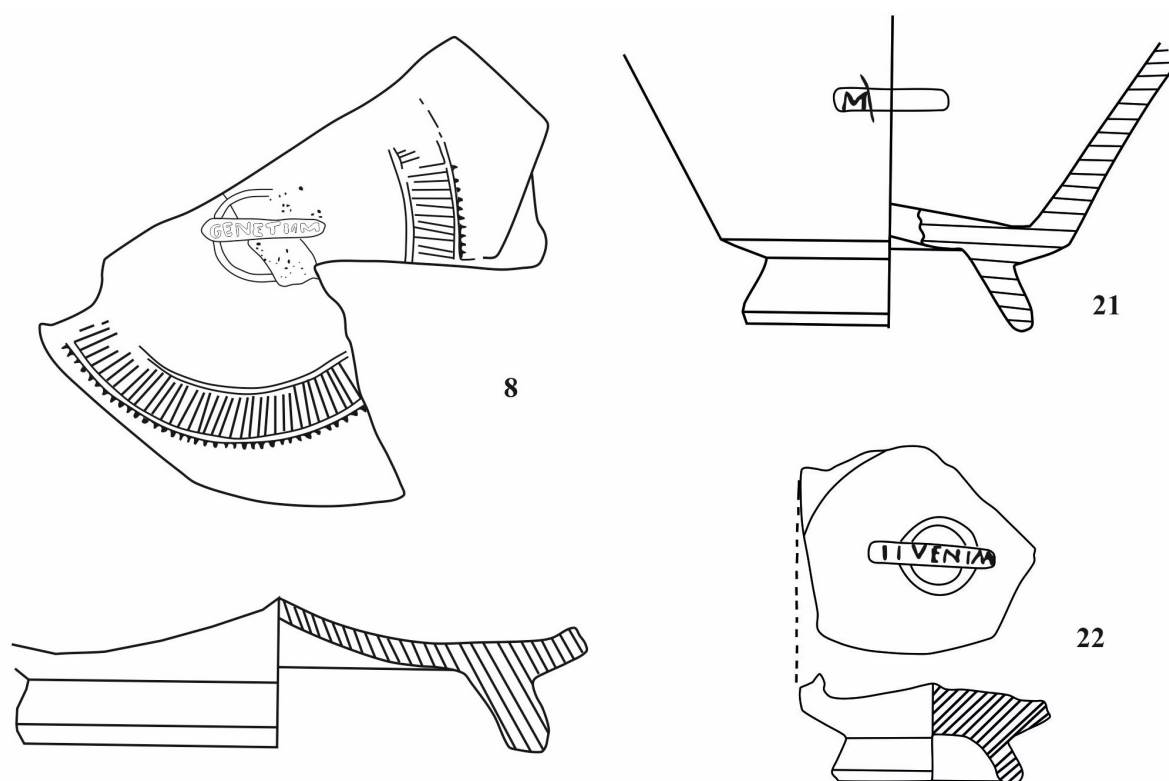


Fig. 7. Plain *terra sigillata* from Napoca (Isac 1980, 477, Pl. II).

analytical perspective and an attempt to construct a general image.⁹³

Dan Isac's unpublished doctoral thesis from 1985, which investigated *terra sigillata* vessels from all of Dacia, is perhaps the most extensive, thorough and generally detailed study on the subject. It is the first comprehensive work to analyse specifically and exclusively *terra sigillata* and the possibilities of its research. The importance of the study is thoroughly discussed by the author,⁹⁴ highlighting some specific aspects that have never been addressed before in our region, pointing out the fact, that while their aesthetic value is clear – (referring to them as artwork), they must be viewed rather as commodities for trade.⁹⁵ He also highlights the necessity of taking a more interpretive approach when examining these artefacts and the fact that Dacia has enough local *terra sigillata* to be included on a map of the major manufacturing provinces.⁹⁶ He also offers critical insight, highlighting that,

when making claims lacking scientific support, researchers labelled the results as 'uncertain' in numerous instances.⁹⁷ Throughout the thesis, he emphasises the foundational nature of the research, focusing specifically on the importance of illustration and the correct method of it.⁹⁸ He presents the research on *terra sigillata* in its complexity, with historical background, including various comments and possible new research options.⁹⁹ He highlights the issue that potters can only be identified through references to prior publications.¹⁰⁰ This situation has not improved considerably since then. He provides important insight by presenting the current knowledge on imported vessels in Dacia¹⁰¹ and locally produced goods.¹⁰² He discusses whether or not this particular pottery can ever

⁹³ BĂLUȚĂ 1982–1983, 215–232.

⁹⁴ Isac 1985, 1–2.

⁹⁵ Isac 1985, 2.

⁹⁶ Isac 1985, 3–4.

⁹⁷ Isac 1985, 6–7, 51.

⁹⁸ Adapting English (STANFIELD–SIMPSON 1958) and Austrian (KARNITSCH 1959) models.

⁹⁹ Isac 1985, 15–29.

¹⁰⁰ Isac 1985, 26.

¹⁰¹ Isac 1985, 39–62.

¹⁰² Isac 1985, 62–84.

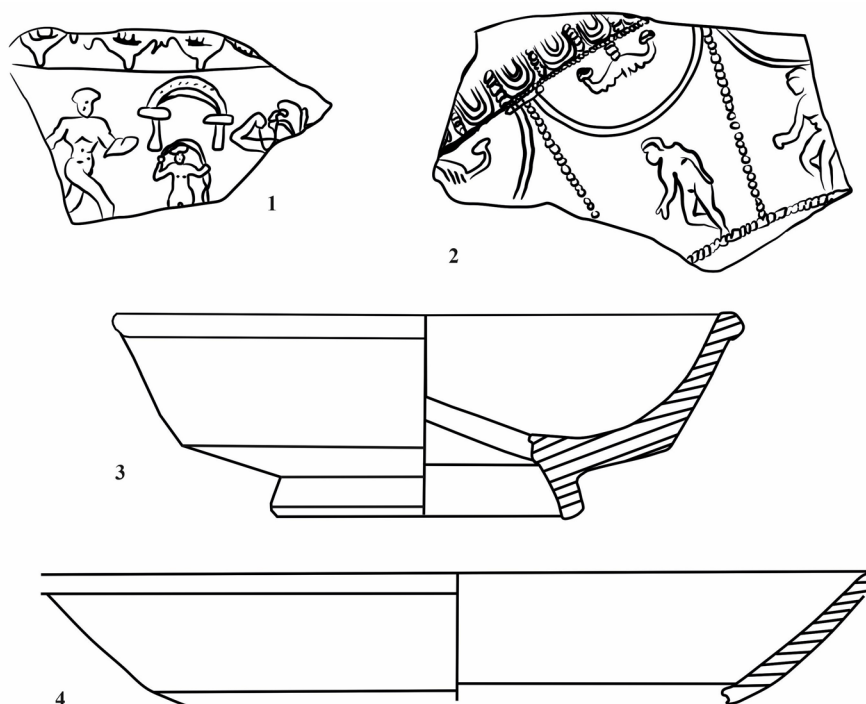


Fig. 8. Decorated and undecorated *terra sigillata* from Dacia Superior (BĂLUȚĂ 1982–1983, 222, Pl. VI).

be used for dating,¹⁰³ mentions why it is more difficult to identify undecorated vessels,¹⁰⁴ gives advice on illustration¹⁰⁵ and points out that the composition of the fabric is already being studied, for example in France.¹⁰⁶ Statistical,¹⁰⁷ stratigraphic and contextual analysis¹⁰⁸ is also present in his work, underlining that only the *terra sigillata* from rescue excavations can be analysed well from a contextual point of view.¹⁰⁹ A detailed description of locally produced wares is also provided, emphasising the current state of research and drawing comparisons with imports.¹¹⁰ In his opinion, the locally made ones are not necessarily inferior in terms of quality,¹¹¹ pointing to styles introduced from Western provinces.¹¹² The conclusions are drawn by highlighting economic and historical aspects,

closely examining the production and trade of *terra sigillata* in Dacia, linking it to the process of Romanisation.¹¹³

In 1988 Popilian's name reappears, this time co-publishing with Ion Ciucă.¹¹⁴ The article is categorising, also because it tries to present too many finds (148 fragments) in a short paper.¹¹⁵ There are mostly additions and comments to previously published material. The authors also mention that many of the finds were collected by local schoolchildren.¹¹⁶ The article follows the distribution by production centres structurally, also presenting statistical analyses, while the investigation of contextual correlations is almost entirely neglected.

The last paper from the 1980s to be discussed was published by Nicolae Gudea in

¹⁰³ ISAC 1985, 54.

¹⁰⁴ ISAC 1985, 21.

¹⁰⁵ ISAC 1985, 23.

¹⁰⁶ ISAC 1985, 17.

¹⁰⁷ ISAC 1985, 53.

¹⁰⁸ ISAC 1985, 54.

¹⁰⁹ ISAC 1985, 55.

¹¹⁰ ISAC 1985, 62–65.

¹¹¹ ISAC 1985, 65.

¹¹² ISAC 1985, 69.

¹¹³ ISAC 1985, 84–87.

¹¹⁴ POPILIAN-CIUCĂ 1988.

¹¹⁵ POPILIAN-CIUCĂ 1988, 61.

¹¹⁶ POPILIAN-CIUCĂ 1988, 61–62. Although this appears to be a general phenomenon, we believe it is worth mentioning because there is a growing revival of community archaeology today, emphasising the importance of the relationship between the local community and the archaeologists, even if it is only for simple finds recovery, as it was in this case.

1989.¹¹⁷ The *terra sigillata* vessels are presented in the form of a report, together with other finds from Porolissum.¹¹⁸ It summarises the attributes of previously published, imported material. He points out that only a small proportion (45 of the 120 pieces) could be identified so far.¹¹⁹ It focuses on the spread of material imported from Westerndorf.¹²⁰ The fragments are described briefly here, probably because it is a novel presentation of previously published material.¹²¹ The study is mainly informative, although it adds little to what we already knew. A more thorough contextual analysis, a detailed study of the motifs and a closer investigation of the functional aspects would have considerably upgraded the study.

THE 1990–2000S: THE RISE OF BROADER INTERPRETATIONS

In terms of structure and perspective, the publication of *terra sigillata* fragments had become quite standard by the 1990s. The number of studies, monographs and reports mentioning and describing this type of pottery, alongside other finds, seems to have increased during this decade. We will refer to three articles written between 1991–1993, which continue a similar analytical-comparative perspective and previously developed cataloguing method, publishing moulds,¹²² locally produced *terra sigillata* vessels,¹²³ and imported wares.¹²⁴

Three further works from 1994 include *terra sigillata* vessels.¹²⁵ The first is the Tibiscum monograph,¹²⁶ in which the vessels appear with a very simple, rudimentary description and

illustration (Fig. 9),¹²⁷ the authors not attempting to provide a more detailed presentation.¹²⁸ We find more scientific information on the topic in the Potaissa monograph,¹²⁹ which not only mentions the vessels,¹³⁰ but also compares imports and local production with the urban development of the area.¹³¹ By making some unusual comparisons with stamped pottery,¹³² it provides some interesting aspects to explore.¹³³ Its analytical approach is significantly more advanced in economic-historical aspects. The third one is a report including *terra sigillata* fragments from Brâncovenesti.¹³⁴ It offers only limited information on the discoveries, often presenting details that are unclear or inconsistent.¹³⁵

Over time, the number of studies mentioning or focusing on this type of Roman pottery vessels has increased. It is commonly published together with other pottery artefacts in articles,¹³⁶ reports,¹³⁷ or discussions about local pottery production centres.¹³⁸ Specialised publications have become much rarer in this period, with Dan Isac's 1997 paper standing out in this regard.¹³⁹ It discusses various aspects that

¹¹⁷ GUDEA 1989.

¹¹⁸ GUDEA 1989, 190.

¹¹⁹ GUDEA 1989, 190.

¹²⁰ GUDEA 1989, 191–192.

¹²¹ GUDEA 1989, 440–445.

¹²² BĂLUȚĂ 1991.

¹²³ POPILIAN–CIUCĂ 1992.

¹²⁴ POPILIAN–CIUCĂ 1993.

¹²⁵ BENEÀ–BONA 1994; BĂRBULESCU 1994; PROTASE–ZRINYI 1994.

¹²⁶ BENEÀ–BONA 1994.

¹²⁷ BENEÀ–BONA 1994, fig. 50, 51, 52. One of the illustrations also appears to be upside down (BENEÀ–BONA 1994, fig. 52).

¹²⁸ The style of the drawings is not necessarily consistent, with the dotting on the rims depicted almost identically to the fracture lines and the colouring of the decorative motifs can be confusing, especially in the case of the ovolo, which can usually be the main characteristic of potters.

¹²⁹ BĂRBULESCU 1994.

¹³⁰ BĂRBULESCU 1994, 110.

¹³¹ BĂRBULESCU 1994, 126.

¹³² BĂRBULESCU 1994, 111–112.

¹³³ BĂRBULESCU 1994, 126–127.

¹³⁴ PROTASE–ZRINYI 1994.

¹³⁵ PROTASE–ZRINYI 1994, 131–132. Based on the descriptions (PROTASE–ZRINYI 1994, 58.) and illustrations, two *terra sigillata* fragments are published (PROTASE–ZRINYI 1994, Pl. LXXVIII/4–5). One of these is questionable (4) because, according to the illustration, its shape is unusual for a *terra sigillata* vessel. On the other hand, it is possible that a third fragment also falls into this category (PROTASE–ZRINYI 1994, pl. LXXVIII/2), which may have been illustrated in reverse and thus represent an *ovolo* motif, or it could also be a ceramic negative.

¹³⁶ POPILIAN 1996.

¹³⁷ GUDEA 1996; BĂRBULESCU 1997; GUDEA 1997.

¹³⁸ POPILIAN 1997.

¹³⁹ ISAC 1997.

have not been addressed before. It compares *terra sigillata* vessels with stamped pottery and roughly describes where imported vessels come from at the sites from Gilău and Cășeu.¹⁴⁰ Isac doesn't only employ a broad analytical-comparative research perspective, but also refers to the production process.¹⁴¹ What is even more innovative is the presence of a more complete contextual analysis, also including archaeological stratigraphy.¹⁴² The publication of a repertory of decorative motifs, as well as the enhancement and clarity of the illustrations (Fig. 10), are also noteworthy.¹⁴³

We mark two publications from the 1990s.¹⁴⁴ The emphasis is still on the data's additive nature, but more detailed descriptions of locally produced imitations are supplied on occasion.¹⁴⁵ The dominance of contextual analysis can also be seen in a work published two years later on archaeological finds from Apulum,¹⁴⁶ which also investigates historiographical aspects (Fig. 11).¹⁴⁷ The production of pottery in Apulum has been attested by a mould¹⁴⁸ among other archaeological finds.¹⁴⁹ Evidence was also found from rescue excavations, names on pottery¹⁵⁰ and the more uncommon imported wares, such as the *terra sigillata tardo-padana*.¹⁵¹

By the early 2000s, contextual analysis had emerged and was used as the primary

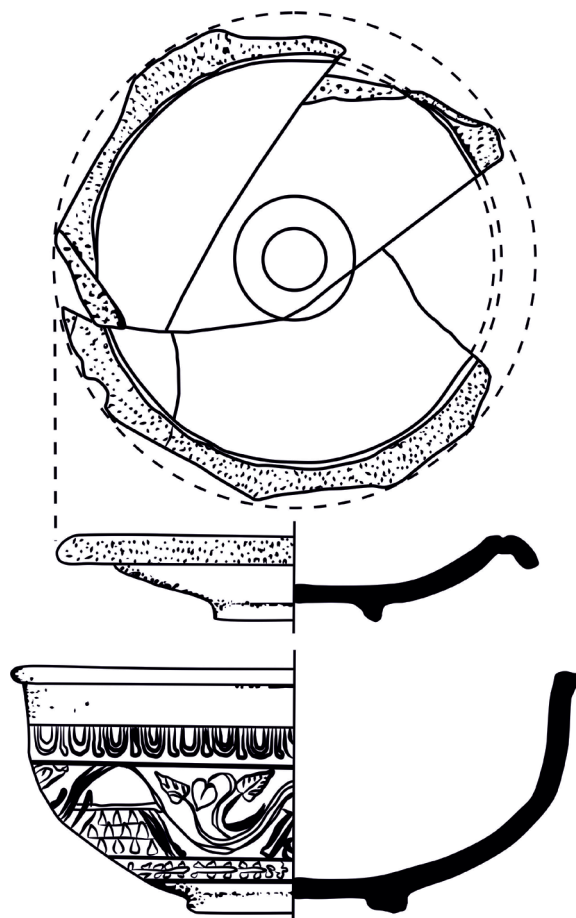


Fig. 9. *Terra sigillata* vessels from Tibiscum (BENEA-BONA 1994, Fig. 50).

perspective of publishing *terra sigillata* fragments. It became clear that the vessels offered both economic-historical insights and valuable information on their discovery locations. Dan Isac compared stamped pottery with *terra sigillata* in his research on the methodology of local production.¹⁵² A vessel from Tibiscum was published using a similar approach, still primarily using a comparative-analytical method,¹⁵³ thereby identifying connections between archaeological features as well.¹⁵⁴

The pottery production centres in Dacia, where *terra sigillata* imitations may have been made, were also investigated more attentively. Another paper from 2000¹⁵⁵ attempted to prove through the presence of eight moulds, that a

¹⁴⁰ ISAC 1997, 389–390.

¹⁴¹ ISAC 1997, 390.

¹⁴² ISAC 1997, 391–393.

¹⁴³ ISAC 1997, 395–421. The clarity of the illustrations lies in the fact that the rubbings of the various decorative elements are shown in special detail, the representation of the edge is not similar to that of the breaking points, there is no stylisation, shading and there is a scale.

¹⁴⁴ STÎNGĂ 1998; BĂLUȚĂ 1999A, 225–237.

¹⁴⁵ STÎNGĂ 1998, 82–85.

¹⁴⁶ MOGA ET AL. 2000, 151.

¹⁴⁷ MOGA ET AL. 2000, 143–144. In this case, the representation is quite incomprehensible due to the shading and colouring, the main goal of which should be historical authenticity, not aesthetics. For example, the shape of the *ovolo* is completely lost, even though it can often be one of the most important clues in the identity of the potter.

¹⁴⁸ BĂLUȚĂ 1997.

¹⁴⁹ RUSCU 1992; DIACONESCU 2001; FIEDLER-HÖPKEN 2004; FIEDLER 2005; FIEDLER-HÖPKEN 2007.

¹⁵⁰ BĂLUȚĂ 1999B, 173–180.

¹⁵¹ MOGA 1999.

¹⁵² ISAC 2000, 329–336.

¹⁵³ ARDEȚ 2000.

¹⁵⁴ ARDEȚ 2000, 305–307.

¹⁵⁵ MAN 2000.

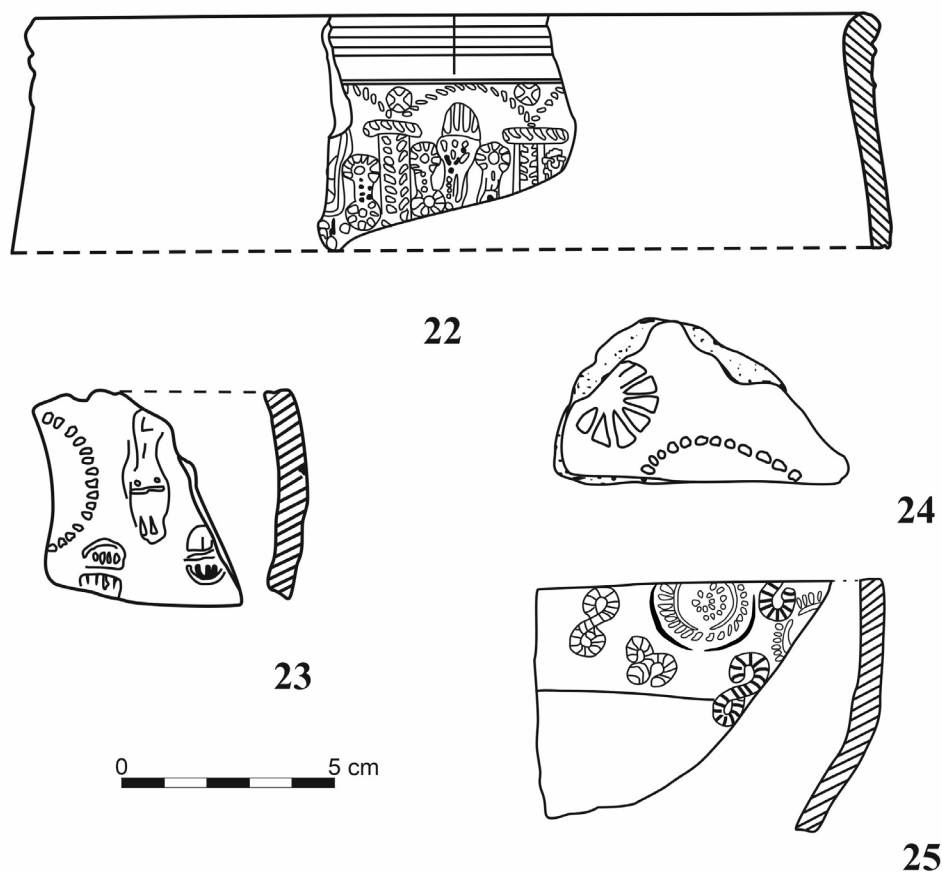


Fig. 10. Decorated *terra sigillata* from Gilău and Cășeu (Isac 1997, 404, Pl. III).

workshop of this kind may have operated in Cristești.¹⁵⁶ These finds do indicate this indeed, yet, further contextual analysis is not included.

Two other publications from the following years deal with or include this subject.¹⁵⁷ We will continue our review with Viorica Rusu-Bolindeț's publication, which follows a substantially new outline and perhaps covers all the researchable aspects of this type of pottery.¹⁵⁸ The paper discusses imported wares from Italy, citing numerous analogical sources and may be the first to mention their actual presence in Dacia.¹⁵⁹ Its innovation lies in challenging previous assumptions by revealing that, despite the province's later historical activity, Dacia may have possessed quantities of *terra sigillata*

tardo-italica comparable to those found elsewhere. Top of Form Bottom of Form

Viorica Rusu Bolindeț also initiates the study of the clay fabric of *terra sigillata*, a field that has yet to become fully systematic.

Ana Catinaș's work on the imported vessels at Potaissa followed a similar method the same year.¹⁶⁰ She examined the finds individually, comparing the decorations to those on stamped pottery.¹⁶¹ The contextual analysis, meanwhile, seems both self-evident and essential for conclusions. A 2005 paper looks at the pottery from Apulum from a new perspective, with a key development being the analysis of the fabric.¹⁶² Although only one piece of local *sigillata* is mentioned,¹⁶³ since the publication does not deal exclusively with this type, it is still

¹⁵⁶ MAN 2000, 337–338; MAN 2011, 67–71, 73–89.

¹⁵⁷ POPILIAN–GROSU 2003.

¹⁵⁸ RUSU-BOLINDEȚ 2004.

¹⁵⁹ RUSU-BOLINDEȚ 2004, 712.

¹⁶⁰ CĂȚINAȘ 2004.

¹⁶¹ CĂȚINAȘ 2004, 83–87.

¹⁶² CIAUȘESCU–GLIGOR 2006, 239.

¹⁶³ CIAUȘESCU–GLIGOR 2006, 243.

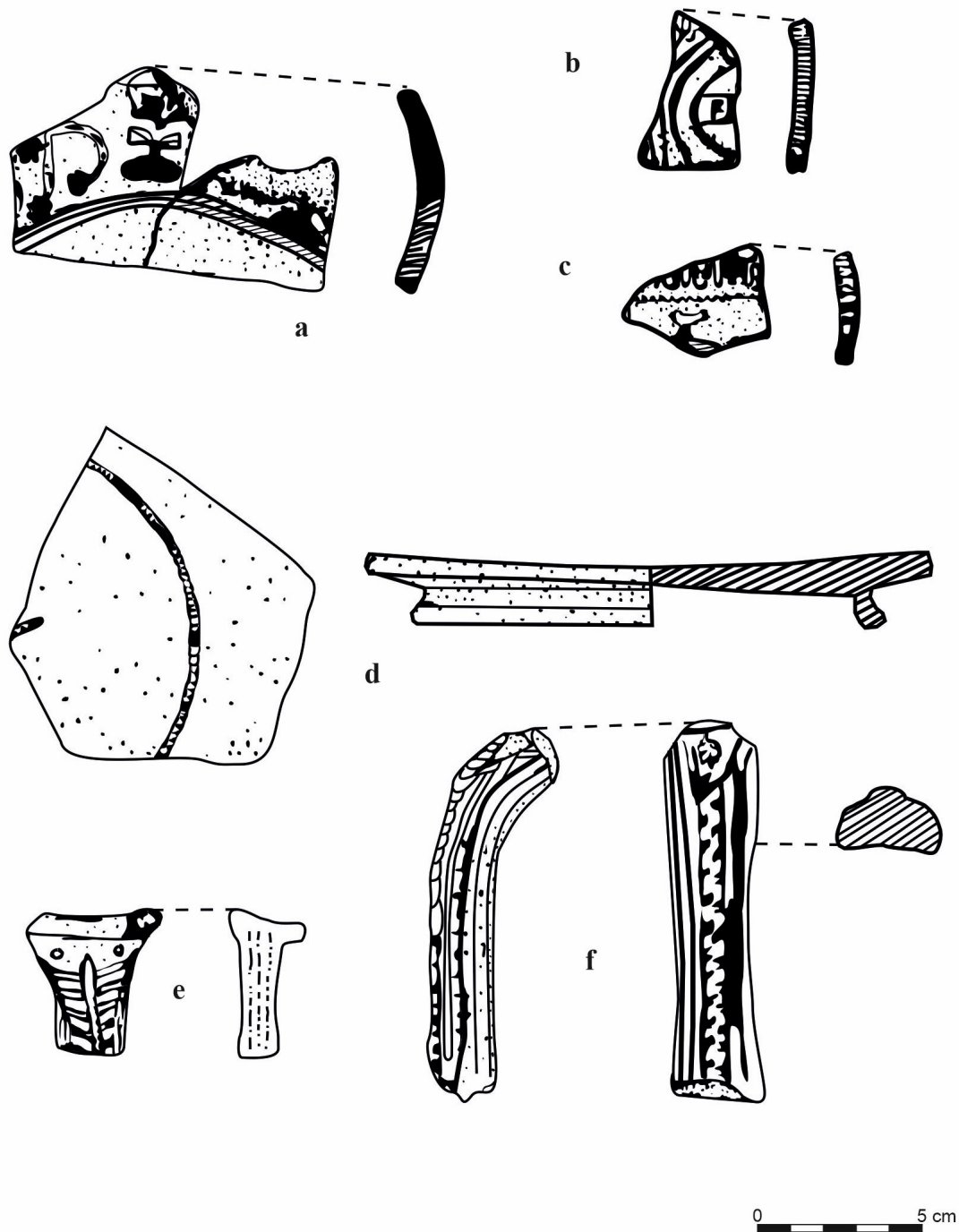


Fig. 11. *Terra sigillata* fragments from Apulum (MOGA ET AL. 2000, 200, Pl. 21).

worth highlighting for its methodology. A typological¹⁶⁴ and a stratigraphic context analysis are already the main methods here.¹⁶⁵

In these years, there was a growing interest in the subject, particularly in the case of

Tibiscum.¹⁶⁶ A study from 2007 will be mentioned, which examines *terra sigillata* vessels imported from Westerndorf.¹⁶⁷ The article is more than just a report on artefacts, it also provides an economic-historical overview,¹⁶⁸ ana-

¹⁶⁴ CIAUȘESCU-GLIGOR 2006, 241.

¹⁶⁵ CIAUȘESCU-GLIGOR 2006, 238.

¹⁶⁶ TRĂILĂ 2005; TRĂILĂ 2006; TIMOC 2006.

¹⁶⁷ TRĂILĂ-ȚUNDREA 2007.

¹⁶⁸ TRĂILĂ-ȚUNDREA 2007, 219.

lysing the operation of the production centre in Westerndorf and the particular impact of its exports on Tibiscum.¹⁶⁹ It looks at potters' workshops and studies the amount and manner of their product deliveries.¹⁷⁰

By the end of the 2000s, the study of *terra sigillata* from Dacia had advanced significantly. An example of this is Viorica Rusu-Bolindeţ's 2007 work¹⁷¹, which, alongside examining imported vessels from Napoca, also addresses the broader topic and emphasises its significance. The first paper provides information on previous research on Napoca.¹⁷² It emphasises the current conditions and underlines the significance of the *terra sigillata* study in Dacia.¹⁷³ It uses a division by production centres and a typological structure, making the publication very clear (Fig. 12) and allows examining each piece in detail.¹⁷⁴ The use of statistical graphs¹⁷⁵ and the much more extensive contextual analysis,¹⁷⁶ followed by a summary of interpretive conclusions,¹⁷⁷ is considered to be a new approach. Her other paper, generally speaking of all the pottery types found in Napoca, contains the most profound and up-to-date information.¹⁷⁸ Imported *terra sigillata* vessels¹⁷⁹ and local ones¹⁸⁰ are treated in separate chapters. The study also highlights terminological issues and typologies,¹⁸¹ drawing interpretive conclusions in each case.¹⁸² After her publications, research on this topic began to shift from a data-driven typological research methodology to an

interpretive-analytical one. From this point forward, we focus not only on the quantity and quality of the vessels, but also on their interpretive value in understanding the history of different regions of Roman Dacia.

FROM THE 2010S TO THE PRESENT: ESTABLISHED PATTERNS, UPDATED METHODS

From the 2010s to the present, research on the topic has grown to such an extent in our region that it is neither appropriate nor our intention to discuss all of the publications that include, mention, or discuss *terra sigillata* in detail. We will only highlight a few. Nor do we consider it necessary to analyse all of these studies in depth because they adhere to a widely accepted standard and schematised scientific criteria, in fact surpassing the pattern of research methodologies used in other areas regarding the Roman provinces. The publications of archaeological reports and material continue to include, now in more detail, the *terra sigillata* fragments as well.¹⁸³

Rusu-Bolindeţ published the most significant works in these years, using a similar interpretive-analytical methodology in the research of locally produced *terra sigillata* and common pottery made in Dacia.¹⁸⁴ A study of imported *terra sigillata* vessels from the Severan dynasty followed a similar outline.¹⁸⁵

The 2018 study by Małgorzata Daszkiewicz, Gerwulf Schneider, Marcin Baranowski, David Petruţ, Viorica Rusu-Bolindeţ, and Nicoleta Man is the most recent and methodologically advanced of the publications reviewed,¹⁸⁶ in which *terra sigillata* fragments discovered in Dacia (specifically from Buciumi and Brâncovenesti) were compared with reference groups of Moesian sherds produced at Butovo, Pvliveni, and Novae, using WD-XRF and

¹⁶⁹ TRĂILĂ-ȚUNDREA 2007, 220.

¹⁷⁰ TRĂILĂ-ȚUNDREA 2007, 220–221.

¹⁷¹ RUSU-BOLINDEȚ 2007A; RUSU-BOLINDEȚ 2007B.

¹⁷² RUSU-BOLINDEȚ 2007A.

¹⁷³ RUSU-BOLINDEȚ 2007A, 195.

¹⁷⁴ RUSU-BOLINDEȚ 2007A, 195–208. The representation of both decorated and plain pieces has become uniform, the colouring or stippling of the rim is no longer typical (and not even relevant), the scale is always present and the decorative elements are also represented in their simplicity and reality.

¹⁷⁵ RUSU-BOLINDEȚ 2007A, 199, 210.

¹⁷⁶ RUSU-BOLINDEȚ 2007A, 208–209.

¹⁷⁷ RUSU-BOLINDEȚ 2007A, 216–219.

¹⁷⁸ RUSU-BOLINDEȚ 2007B.

¹⁷⁹ RUSU-BOLINDEȚ 2007B, 138–190.

¹⁸⁰ RUSU-BOLINDEȚ 2007B, 190–230.

¹⁸¹ RUSU-BOLINDEȚ 2007B, 190–192.

¹⁸² RUSU-BOLINDEȚ 2007B, 168–178; 212–218.

¹⁸³ MAN-CIOATĂ 2012, 85–101; DOBOS ET AL. 2017; EGRI 2018; PETRUȚ 2018, 63–76; ANGHEL 2019; HÖPKEN ET AL. 2020; KOVÁCS 2023.

¹⁸⁴ RUSU-BOLINDEȚ 2011; RUSU-BOLINDEȚ 2014.

¹⁸⁵ RUSU-BOLINDEȚ 2016.

¹⁸⁶ DASZKIEWICZ ET AL. 2018.

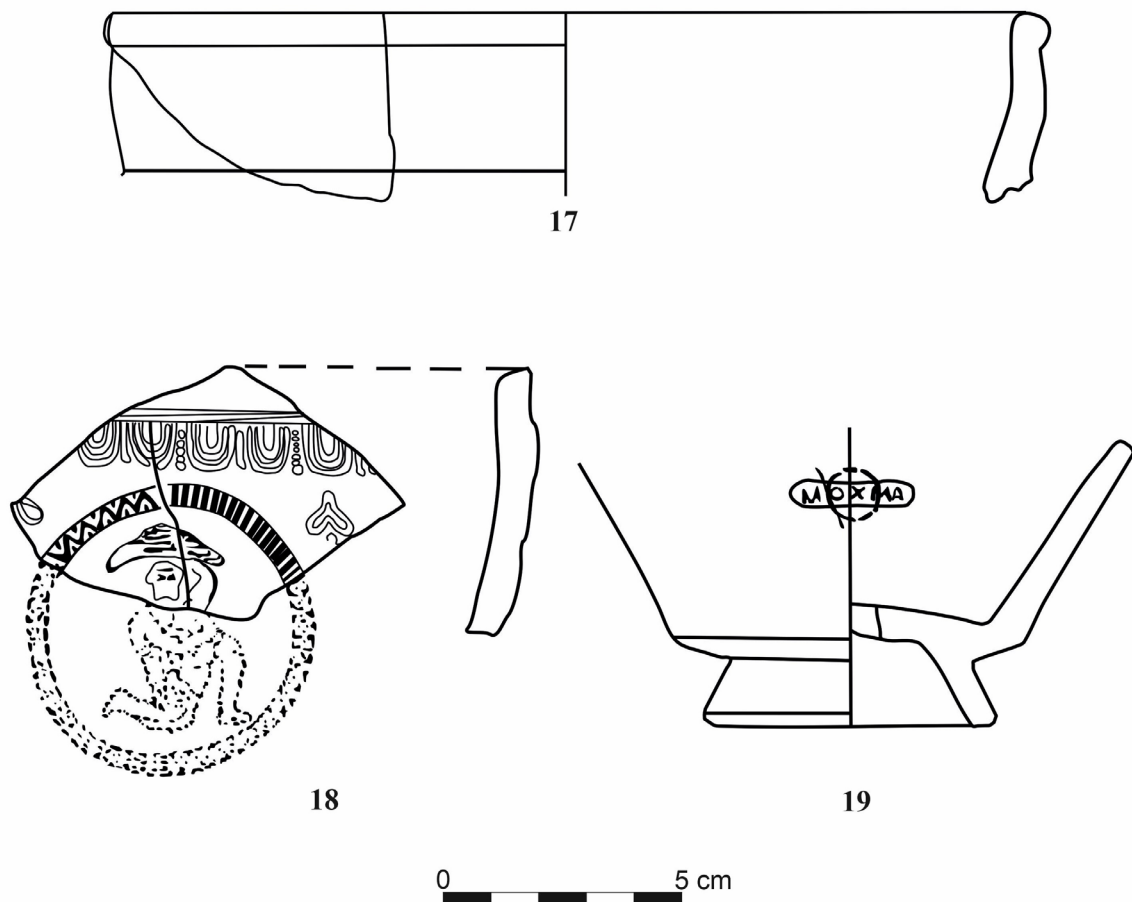


Fig. 12. *Terra sigillata* fragments from Napoca (RUSU-BOLINDEȚ 2007A, 242, Pl. V).

p-ED-XRF analyses. As a result, the origin of the imported vessels and the local provenance of 10 fragments could be determined.

CONCLUSIONS

One of the key characteristics of the first few decades (from the 1960s to the 1990s) was the promotion of the research's significance. This may no longer be essential given that it is now well recognised and that we are aware of the importance of the historical and archaeological data it provides. It may also no longer be necessary to discuss *terra sigillata* tableware as a luxury product of the Romans, given that it is much more of a stereotype in the literature, while the very meaning of the word 'luxury' is debatable. The reason we distinguish it from common Roman pottery is the special elaboration of its material, the decoration, and the entire

production method. Also, it remains unclear whether the term 'luxury' had any particular meaning for the Romans in this context, and its usage in historiography does not advance the study of *terra sigillata*. The authors published mostly decorated *terra sigillata* for a long time (which are easier to identify), together with common pottery or other archaeological finds. There has been a noticeable increase in publications dedicated to this specific category, and even in those where it is mentioned only briefly, additional data is being recorded, regardless of its relevance.

Nevertheless, it remains important to address these finds separately, as they can be analysed from numerous perspectives. When considered in conjunction with other discoveries or pottery, crucial details that are vital for the final interpretation may be overlooked.

The lack of focus on contextual analysis for an extended period may be attributed to the

differences in archaeological excavation practices during those decades, where valuable stratigraphic information was often not recorded. As a result, these vessel fragments were frequently used solely for dating purposes, without further discussion of other relevant aspects. However, from the 1990s onward, this approach became more widespread, with research increasingly adopting an interpretive framework. Consequently, a more structured approach emerged, incorporating not only typological elements but also chronological, economic-historical, interpretive, contextual and comparative considerations.

We arrived at various conclusions or even questions in reviewing the development of the illustrations. Even though many of them are quite similar, there is apparently no systematic method for drawing and visualising *terra sigillata*. The real question is whether they need to be standardised at all. Different styles will inevitably develop and some details – like whether the vessel's profile is partially filled or not – may not matter in the end. Systematisation is crucial to the extent that historical accuracy, rather than artistic expression (shading, punctuation, or embellishment), should be the primary consideration in every publication.

Technical drawings assist researchers in identifying analogies and connections. While photographs can also aid in this process, they often distort details, such as decorative motifs, due to factors like lighting, angle, hue, and shadows. In contrast, rubbings provide a more accurate representation of these intricate details. Accurate field documentation is also crucial to the proper processing of the material. This is primarily due to the fact that the finds have the potential to be dated, as *sigillata* fragments sometimes change the definition of our context's chronology and *vice versa*. As we have stated, the illustration will, first of all, provide the necessary information, stylistic characteristics, typological features, and even more accurate dating.

The analysis of functionality remains

underexplored in the publications reviewed, with much of it overlooked. From the typological classifications, we can only infer that the vessels are, for example, bowls or cups. To gain deeper insight into their actual use, analogies can be drawn by examining and comparing other types of vessels. The consideration of these details does not preclude the development of a more comprehensive understanding; rather, it contributes to a more nuanced and complete interpretation. Another distinct topic is the issue of the motifs of the decorations. Even though many repertoires and catalogues have been created about them, we hardly ever come across any mention of them in the publications discussed above. Along with identifying and coding the decorative elements we come across, the following questions arise: Is there anything behind them? Does it relate to the cultural world, mythology, or real-world existence, or is it merely an aesthetic requirement? Motifs and patterns differ from vessel to vessel and can help identify the producer, but did their use depend on anything in particular? Further research is also necessary on stamps, particularly in the case of provincially produced *terra sigillata*.

This opens up a wealth of new information for research, such as how and when *Dacia* traded with other provinces, the extent to which a particular type of pottery influenced trade, and the degree to which we should take cultural assimilation into account when analysing the socio-historical aspects of its distribution and appearance. Statistics and qualitative analysis that focus on the various versions and origins of *terra sigillata* vessels can help with this.

Although the research into this type of archaeological material began relatively late, the shift from aesthetic and quantitative analysis to a more technical, comprehensive, and interpretive approach is likely still ongoing. It is widely acknowledged across publications that a thorough study of *terra sigillata* from across *Dacia* is essential, and it is precisely these works that advance this goal.

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NEW EVIDENCE CONCERNING THE *ALA ILLYRICORUM* FROM BRÂNCOVENEȘTI / MAROSVÉCS*

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This paper presents four newly discovered Roman military tile and brick stamps from Brâncovenesti / Marosvécs. One belongs to a type already known as belonging to the Ala numeri Illyricorum, the other two represent a new type and can be read as Ala Illyricorum.

Keywords: military stamps, auxiliary unit, Illyrians, *ala*, *numerus*, *limes*.

Cuvinte-cheie: șampilă militară, unitate auxiliară, illiri, *ala*, *numerus*, *limes*.

The Roman fort at Brâncovenesti / Marosvécs (Mureș / Maros County, Romania) is located on the right bank of the Mureș River and it was one of the most important fortifications on the eastern *limes* of Roman Dacia and subsequently Dacia superior, later Dacia Apulensis (Fig. 1).

The archaeological site has been known since the 19th century,¹ tackled and researched later by I. Paulovics, who highlighted its position and strategic importance² and the existence of a single military stamp with *al(ae) n(umeri) Il(l)yr(icorum)* set in a die with *tabula ansata* (Cat. 1; Pl. I/1a–b).³

The first archaeological excavations were carried out between 1970 and 1987 by D. Protase and A. Zrínyi. They were focused on the defensive structures of the fort, determining its exact dimensions and location, and on different parts of the nearby civil settlement.⁴ Since then, studies have been published on the internal organisation of the fort,⁵ geophysical and topographical surveys⁶ or the archaeological material.⁷

The shortage of military tile and brick stamps from Brâncovenesti is rather unusual, even though large areas of the site have been excavated in the 20th century, and large amounts of inscriptions have been recovered in the area of the *porta decumana* and the western precinct wall.⁸ I. I. Russu studied the history of the auxiliary unit and the funerary inscriptions, which can be linked to a presumed Illyrian ancestry.⁹ Ever since, these inscriptions have been tackled on several occasions.¹⁰

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¹ NEIGEBEUR 1851.

² PAULOVICS 1944, 23–27.

³ See mainly: SZABÓ 1865, 79–80; CIL III 6284 = 8075/7; SZILÁGYI 1946, 51, Tábla XIV/200; RUSSU 1957, 361; PROTASE–ZRINYI 1975, 62, Pl. XXVII/1–2; PROTASE 1977, 384–386, Fig. 4, Pl. 37/1; RUSSU 1977, 94, Fig. 1, 99; PROTASE–ZRINYI 1992, 101, nr. 15, Pl. VIII/1a; AE 1992, 1474; PETOLESCU 1993, 394–395, nr. 607; PROTASE–ZRINYI 1994, 41, Pl. XLVI; SPAUL 1994, 150–151; LAZĂR 1995, 87; GUDEA 1997, 57; PETOLESCU 2002a, 132; KURZMANN 2006, 126; ILD 454; GREC 2010, 103, Fig. 56; MATEI-POPESCU 2014, 207; MATEI-POPESCU–ȚENEA 2016, 9–10; PISO–MARCUS 2016, 73–74.

⁴ PROTASE–ZRINYI 1975; PROTASE 1977; PROTASE–ZRINYI 1978; PROTASE–ZRINYI 1992; PROTASE–ZRINYI 1993; PROTASE–ZRINYI 1994.

⁵ MARCU 2009, 119–120.

⁶ POPA ET AL. 2010; PÁNCZÉL ET AL. 2012.

⁷ SIDÓ 2018; SIDÓ 2020.

⁸ PROTASE–ZRINYI 1975; PROTASE–ZRINYI 1992.

⁹ RUSSU 1977.

¹⁰ See mainly: PETOLESCU 2021, 214; DANA 2010, 204.

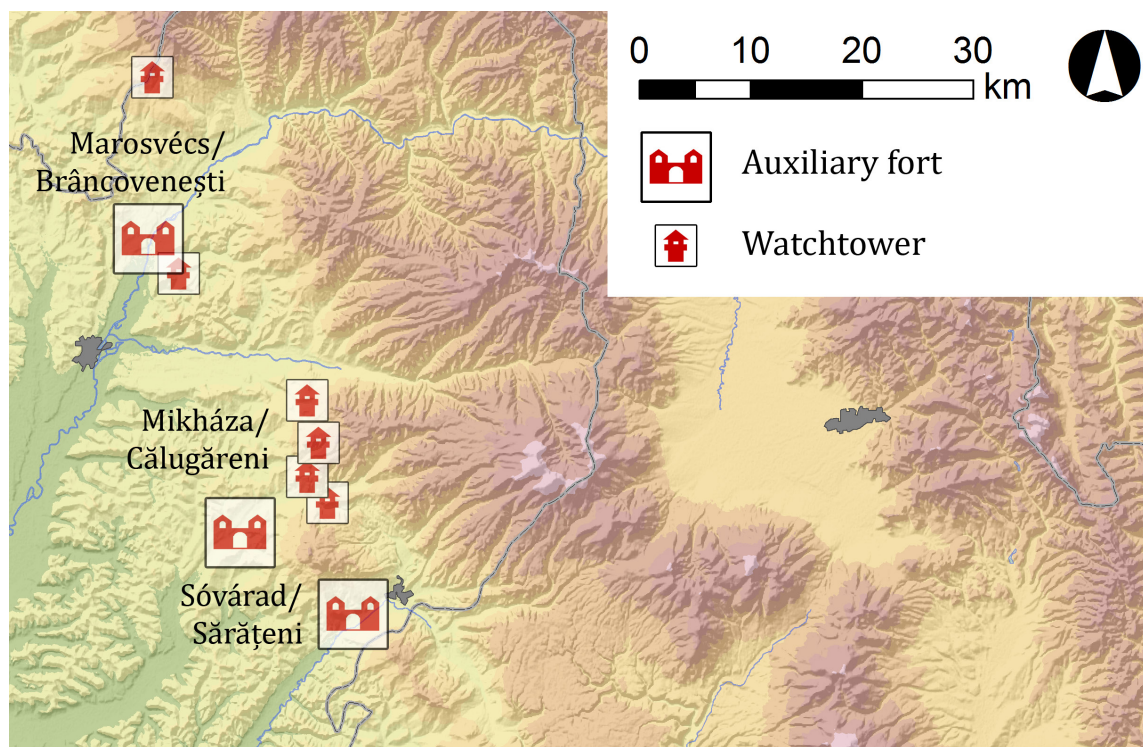


Fig. 1. Map of the eastern *limes* between the Mureș and Târnava Mică valleys (Made by M. Szabó)

The discussion regarding the chronology and the different name variants of the auxiliary unit from Brâncovenești relies on a few written sources.

J. Spaul dates the creation of the unit to the 2nd century AD as *vexillatio equitum Illyricorum*.¹¹ In a more recent study, C. C. Petolescu points out that the *vexillatio*, probably *miliaria*, was created by Trajan, of *equites* chosen (*electi*) from Illyricum (Illyricum superius). The *vexillatio* was brought to Dacia by Hadrian, and divided into two *quingenariae* units.¹² By the end of his reign, the units were transformed into *numeri*.¹³ F. Matei-Popescu¹⁴ and F. Matei-Popescu with O. Țentea¹⁵ support the idea that the unit from Brâncovenești was different from the one stationed at Hoghiz, and starting from the 3rd century it became an *ala*.¹⁶ Refer-

ring to a funerary inscription from Ratiaria,¹⁷ C. C. Petolescu pointed out that in Dacia there were two units with a similar name, the *ala numeri Illyricorum* stationed at Brâncovenești in Dacia superior, from where the veteran of Ratiaria originates, and another unit, *numerus equitum Illyricorum*, probably stationed at Hoghiz in Dacia Inferior.¹⁸

I. Piso and F. Marcu enlist all the previous readings of the stamp and suggest a dating to the second part of the 2nd or 3rd century AD.¹⁹

The name of the Illyrian cavalry units appears between 125–140 as *vexillatio equitum Illyricorum*,²⁰ and after 140 as *numerus equitum Illyricorum*.²¹ The *ala* is mentioned mainly in

¹¹ SPAUL 1994, 150.

¹² In a yet unpublished diploma from 124 AD, the unit appears as *vexillatio equitum electorum Illyricorum* (information from F. Matei-Popescu).

¹³ PETOLESCU 2021, 213–214.

¹⁴ MATEI-POPESCU 2014, 206–207.

¹⁵ MATEI-POPESCU-ȚENTEA 2016, 9–10;

¹⁶ For the stamp of the *n(umerus) I(llyricorum)* from Hoghiz (CIL III, 8075 = IDR III/4, 243 = AE 1974, 561), see: MATEI-POPESCU-ȚENTEA 2016, 10.

¹⁷ AE 2011, 1103b = AE 2014, 1121

¹⁸ PETOLESCU 2018, 282, no. 1949.

¹⁹ PISO-MARCU 2016, 74.

²⁰ AE 2009, 1035; CIL XVI, 75 = IDR I/10 = DANA 2020, 164; RMD V, 376 = PETOLESCU 2002B, 317–318 = ILKIĆ 2009, 59–73; AE, 1920, 45 = IDRE II, 42.

²¹ AE 2002, 1223 = RMD V, 384; RMD I, 39 = IDR I/13; WEISS 2012, 192; ECK-PANGERL 2011, 230; RMD IV, 269; ECK-PANGERL 2008, 192–193; IDR III/5, 585 = CIL III, 1197; CIL VIII, 9358 = ILS 2738 = AE 1987, 827 = IDRE II, 464; CIL XI, 393 = ILS 2739 = IDRE I, 132; GREGORI-MATEI-POPESCU 2025.

the sources from the 3rd century,²² excepting a funerary inscription from Apulum, where the connection with the unit can be questioned due to its fragmentary state and which is dated to the 2nd half of the 2nd century AD.²³

The aim of this paper is to present four recently discovered stamped bricks and a tile. Due to infrastructural developments in Brâncovenеști, a rescue excavation took place in 2023 and 2024, changing our understanding of the civil settlement, which turned out to be considerably larger than previously assumed, extending also to the first and the second terraces of the Mureș River.

One of the newly discovered brick stamps (Cat. 2; Pl. I/2, II/1–2) is identical to the previously known one, bearing the *[al(ae)] n(umeri) Il(l)yr(icorum)* stamp. Discovered as a reused building material in the *vicus* (Pl. II/2), it was found on the clay floor of a building with a stone foundation, located east of the military fort on the first terrace of the Mureș River. The floor can be dated by the archaeological material to the 2nd century AD. The brick was stamped erroneously, therefore only the letters *NILYR* in a die and the upper part and the right ear of the *tabula ansata* are visible.

The second new stamp (Cat. 3; Pl. III) bears the letters *ALE ILLYR* in a die with *tabula ansata*, the letters *ALE*, *IL* and *YR* are in ligature, so the stamp can be read as *al(a)e Illyr[(icorum)]*. Even though the stamp is fragmentary and the right ear of the *tabula ansata* is missing, the inscription does not seem to be affected. The tile was discovered in the area of the *vicus*, in the fill of a modern building pit.

The third new stamp (Cat. 4; Pl. IV) is similar to the previous one with the text *Al(a)e · Il[lyr(icorum)]*, but only the letters *ALE* and *IL* in ligature are preserved and the rest, together with the right ear of the *tabula ansata*, is missing. The brick was discovered in the *vicus*, in

a layer related to the destruction of a building with a stone foundation and clay floor, dated to the last phase of the Roman settlement. Even if the dating based on the archaeological material is not conclusive enough, it does support the dating to the wider 3rd century AD.

The fourth new stamp (Cat. 5; Pl. V) also bears also the *[al(a)e] Illyr(icorum)* stamp, only the letters *ILLYR* are preserved, *IL* and *YR* in ligature, and the right side of the *tabula ansata*. On the left side of the fragment, the lower right part of a hasta from probably *LE* in ligature is visible, the rest with the right ear of the *tabula ansata*, is missing. The brick was discovered in the *vicus*, in the fill of a posthole, which belonged to a structure from the latest Roman phase of the settlement, so the second–third quarter of the 3rd century AD. The stamped tile was possibly used as a packing of the posthole.

Since all the finds were recovered in the *vicus* as reused building material or as part of a destruction layer, the dating of their use, based on the context of discovery has to be treated with a certain amount of scepticism. Even though we can postulate that the *al(ae) n(umeri) Il(l)yr(icorum)* stamp shall be dated to the second part of the 2nd century AD, and the *al(a)e Illyr(icorum)* stamps belong rather to the 3rd century AD, we can't exclude the possibility that they could have been produced and used earlier. The fact that the stamps with *al(a)e Illyr(icorum)* show different variants (eg. shape and size of the *tabula ansata*, shape and size of the letters and appear on bricks and tiles as well), could indicate that this name was used for a longer time span. In conclusion, the Brâncovenеști unit probably changed its name from *ala numeri Illyricorum* to *ala Illyricorum*. Regarding the renaming of the unit, the stamps from a 3rd century context can be used only as *terminus ante quem*.

CATALOGUE

Cat. 1.

Brick with the *Al(ae) n(umeri) Il(l)yr(icorum)* stamp in *tabula ansata*. The letters *AL* in ligature (Pl. I/1a–b).

Dimensions of the die 3.2 × 17 cm; letters of 1.8 cm.

²² AE 1988, 947 = IDR III/5, 631; IDR III/5, 475 = AE 1987, 829; PROTASE –ZRINYI 1992, 96–98, nr.1, Pl. II/1a; ILD 440 = AE 1992, 1472; CIL VI, 3234^o = ILS 2209 = IDRE I, 54 (*ala I Illyricorum*, perhaps the official name of the unit in the first half of the 3rd century); AE 2011, 1103b = AE 2014, 1121.

²³ AE 1988, 957 = IDR III/5, 631.

Discovered in 1847.

Collections of the National Museum of Transylvanian History, Inv. no. MIC 19 = V 12896.

Cat. 2.

Brick with the *[Al(ae)] n(umeri) Il(l)yr(icorum)* stamp in *tabula ansata* (Pl. I/2, II/1–2).

Dimensions 39.8 × 28.2 cm, thickness 5.7 cm, dimensions of the die 12.5 × 3 cm; letters of 1.9 cm.

Discovered in Trench CR 214, Context 247, Small find no. 553.

Archaeological collections of the Mureș County Museum, Inv. no. 17273.

Cat. 3.

Tegula with the *Al(a)e · Illyr[(icorum)]* stamp in *tabula ansata*. *ALE*, *IL* and *YR* in ligature (Pl. III).

Dimensions 11 × 8 cm, thickness 3.1 cm, dimensions of the die 9.9 × 3.6 cm; letters of 2 cm.

Discovered in Trench CR 211, Context 234, Small find no. 287.

Archaeological collections of the Mureș County Museum, Inv. no. 17274.

Cat. 4.

Brick with the *Al(a)e · Il[lyr(icorum)]* stamp in *tabula ansata*. *ALE* and *IL* in ligature (Pl. IV).

Dimensions 22 × 18 cm, thickness 5.8 cm, dimensions of the die 6.7 × 4.1 cm; letters of 2.1 cm.

Discovered in Trench CV 88.16–17, Context 126, Small find no. 244.

Archaeological collections of the Mureș County Museum, Inv. no. 17275.

Cat. 5.

Brick with the *[Al(a)e] · Illyr(icorum)* stamp in *tabula ansata*. *IL* and *YR* in ligature. On the left side of the fragment, the lower right part of a hasta from probably *LE* in ligature is visible (Pl. V).

Dimensions 21 × 12 cm, thickness 4.9 cm, dimensions of the die 9.5 × 3.7 cm; letters of 2.7 cm.

Discovered in Trench CV 89.1.7.2-A, Context 867, Small find no. 1072.

Archaeological collections of the Mureș County Museum, Inv. no. 18271.

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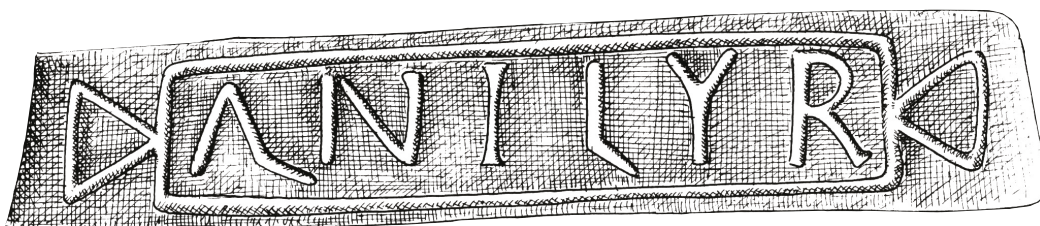
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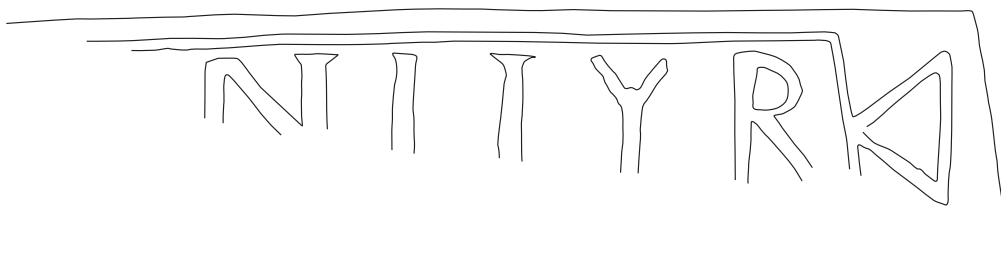
1a.



1b.



2.



0 5 cm

Plate I. 1. Cat. 1 (1a. PISO–MARCUS 2016, 73–74, XCVIII;
1b. PROTASE–ZRÍNYI 1994, 116, Pl. XLVI/1a); 2. Cat. 2.

1.



0 5 cm

2.



Plate II. 1. Cat. 2; 2. *In situ* photo of Cat. 2.

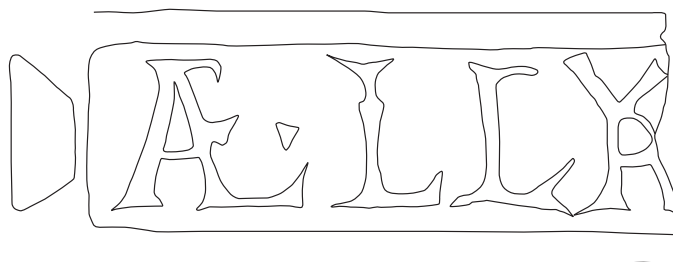
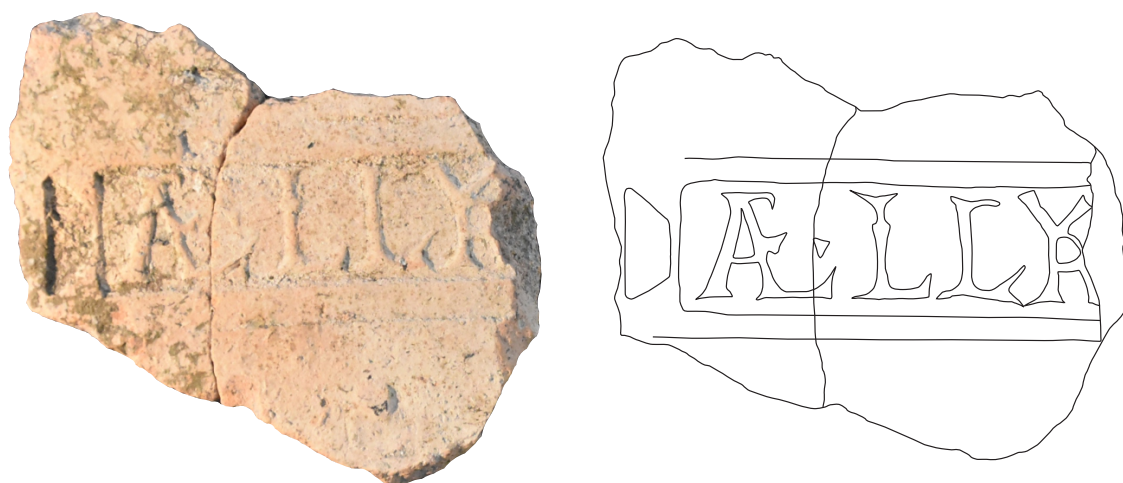
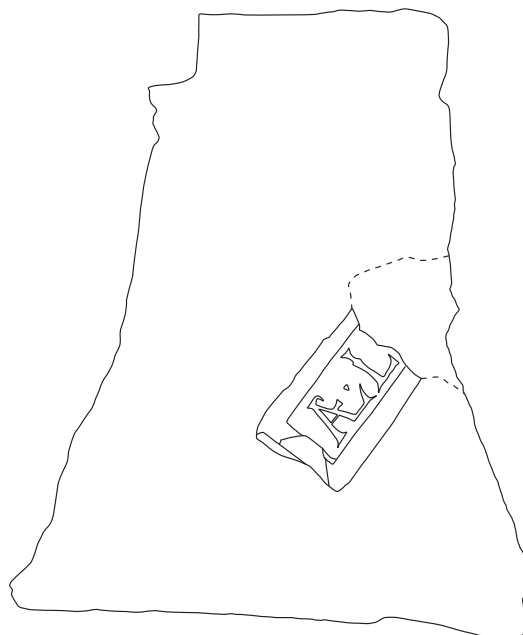


Plate III. Cat. 3.



0 5 cm

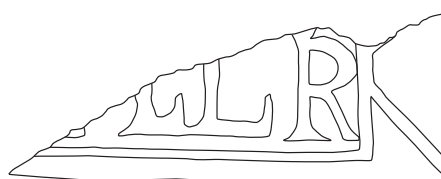


0 5 cm

Plate IV. Cat. 4.



0 5 cm



0 5 cm

Plate V. Cat. 5.

THE USE OF THE RUSSIAN TERM “UGOR” IN HUNGARIAN ARCHEOLOGY

Bálint KERÉNYI*

In Hungarian archeological literature the Russian term ‘Ugor’ can be translated to sign the population of the Ugric language unity – which in Hungarian linguistics is said to be lasted from the 2000 BC until 1000–500 BC –, or it can sign directly the ancestors of the Hungarians. Although if one reads carefully the archeological studies it is clear that in Russian the term „Ugor” is also used to sign the Ugric-speaking populations around the Ural mountain and Western Siberia in the first centuries AD, and also the term ‘Ugor’ can be used equivalently as ‘Ogur’, as in Russian archeology it is a wide spread theory that the European Huns and Oguric (f. e. Ogur, Onogur, Saragur, Kutrigur) people were formed east of the Ural by the unity of the local Ugoric and the settling Xiongnu population. Also the term ‘Ugor’ in Russian is the original designation of the Hungarians and it has a strong relation with the territory name Jugria and the Ob-Ugric people. From the term ‘Ugor’ was partly created the scientific designation of the so called ‘Finno-Ugric’ language-family as well. The original form seems to be ‘Ogur’ as the Byzantine sources testify.

Keywords: Ugric language unity, Ugors and Ogurs, Hungarian prehistory, terminology

THE DIFFERENCES BETWEEN THE USE OF THE TERM „UGOR”

In his dissertation of the year 2011,¹ Attila Türk stated that the archeological material of the conquering Hungarians cannot be connected to the Saltovo-Mayak culture, which is the heritage of an Alanian population around the river Seversky Donets, dated from the middle of the 8th century to the end of the 10th century.² With this statement Türk refuted the theory of István Fodor, who thought that the nomad Hungarians settled in the region of the river Don (the supposed area of Levédia) around the middle of the 8th century and, after spending about a hundred years there, moved westward.³ Also Türk states, there is no any archeological traces of an Uralian population moving to the territory of the Khazar Khaganate between the 6th and 8th centuries.⁴ This

theory is represented mainly by turcologists, who on the basis of the quantity, the chronology and biogeographic aspects of the Turkic – and partly the Alanian – elements of the Hungarian language assumed that the Hungarians had to live for a longer period in the southern area of the East European steppe.⁵ Ultimately Türk refuses the possibility that the ancestors of the Hungarians could live in the southern steppe zone from the 5th to the 8th centuries, saying that in the Don-Kuban area ‘the Eastern European archeological research did not reveal any traces of Onogurs, nor of any population (Hungarian?) that moved there from the Volga-Ural region... the majority of the designated area is uninhabited, and we currently do not know of any archaeological remains from there at all. On the other hand, the number of burials known from the settled areas do not exceed 120 even today, despite the research

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¹ TÜRK 2011.

² TÜRK 2011, 48.

³ FODOR 1975, 171–186.

⁴ TÜRK 2014, 19–29.

⁵ LIGETI 1986, 160–161.; ZIMONYI 2014, 85–91.

that can be said to be very intensive by means of Eastern European standards.⁶ Türks states that the archeological material of the 9th century Hungarians shows more similarities to the Ural region from where they left in the first half of the 9th century and reached directly to the Dnieper region, where the so called Subotcy-layer can be connected to them.

However, in Türks' dissertation there is a number of citations to Russian archeologists who write about the presence of an Ugric/Ugoric population in the Volga- and steppe-region in the second half of the first millennium. He mentions R. S. Orlov, who 'in his study of the Sivašovka-culture distinguished two main types of horse burials: partial and full horse burials. Although he connected the Sivašovka-culture with the ancestors of the Bulgars, he believed that in the 6th and 7th centuries, apart from the Bulgars, the Avars and the Ugors formed a single cultural community north of the Black Sea, of which this burial custom was an integral part.'⁷ According to Türk O. M. Prihodnuk suggests that 'the [...] tombs excavated at the Kordon-Oba site of the Khazar period in the Crimea may possibly indicate the settlement of a people of Finno-Ugric origin, given the large number of this type of tombs in the Volga-Kama region.'⁸ In the opinion of E. P. Kazakov '... the western orientation of the horse skull in the partial horse burials observed in the early medieval cemeteries of the Volga-Kama region would indicate an 'Ugric' origin, while the placement of the horse skull in a right angle to the human skeleton would be the legacy of the 'Bulgar-Turkic' peoples of the Don or Middle Volga'⁹ On the page 200 we can read that

one of the main issues of the conference held in Ufa in 1969, which dealt with the ethnogenesis of the Bashkirs, was the question of the identification of the ancestors of the Ugor people. The majority of the researchers judged differently in regard of the possibility to separate them in the archeological material. N. A. Mažitov defined the Bahmutino culture as Ugor. Türk signs here that under Ugor we should understand Hungarian.¹⁰ Also on the same page we can read that E. G Matveeva defined the Kusnarenkovo and Karaakupovo cultures as the heritage of the Ugor people. Later in Hungarian archeology the Kusnarenkovo and Karaakupovo culture were defined as Hungarian.

From the citations above it seems that the term Ugor used in Russian archeology is the equivalent of the term Hungarian/Magyar used in Hungarian archeology. But the case is not that simple. In the series titled *Magyar őstörténet/Hungarian prehistory* the description of the Kusnarenkovo culture informs us that the culture west from the Ural is dated between the 6th and 8th centuries AD and is mostly connected to the population of the Ugric language unity or directly to the Hungarians.¹¹ In Hungarian linguistic research it is basically a fact, that the branch of the Ugric language separated from the Finno-Ugric language unity around 2000 BC and lasted till c. 500 BC.¹² From this Ugric language developed the ancient Hungarian and the ancient Ob-Ugric languages. Therefore, the first part of the definition given in the book from a linguistic point of view would be impossible. Our suspicion is strengthened by how Türk shortly describes in his dissertation the theory of M. I. Artamonov concerning the changes of the ethnic environment of the European steppe from the 4th century. '...this [Khazar] population was mainly descended from Sarmatian-Alan elements of the Black Sea steppes, who mixed with Finno-Ugric and Turkic tribes who had arrived from Asia with the Hun conquests. The Bulgarian-Khazar tribes born from this mixture

⁶ TÜRK 2021, 163–212, 191–192. In the text Türk refers to the author says the contrary: 'Despite the importance of the region, the archeological research on the issue is scarce. Fewer than 120 grave complexes and archaeological sites are known from the region and period under study, either as solitary burials or as part of communities with 2–4 graves. These circumstances impose serious limitations on interpretation.' GULYÁS 2021, 64–74.

⁷ TÜRK 2011, 92.

⁸ TÜRK 2011, 171.

⁹ TÜRK 2011, 178–179. In this sense they seem to be different variants of a common burial tradition. Says Kazakov as well.

¹⁰ TÜRK 2011, 200.

¹¹ MAGYAR ŐSTÖRTÉNET 1, 38.

¹² BEVEZETÉS 1/2 1984, 5. Zsirai saw it possible that the separation occurred later, around the 5th century AD. See. ZSIRAI 1937, 150.

spoke Turkic languages.¹³ We can clearly read here that in Artamonov's view a population with Finno-Ugric and Turkic elements/tribes arrived to the steppe with the Hun conquest of East-Europe. Accepting the above mentioned statement of the Hungarian linguistics, in regard of the Finno-Ugric elements of the Hun migration we should think of the Ob-Ugrians or of the Hungarians. This conclusion corresponds perfectly to the wide spread theory in Hungarian linguistics and archeology, according to which the ancient homeland of the Ugric-speaking population and later of the archaic Hungarian-speaking population was east of the Ural mountain and in Western Siberia.¹⁴ Türk Attila does not refer to M. I. Artamonov when he refutes the archeological relation between the Hungarian and the Saltovo Mayak culture, although it was Artamonov who stated this first.¹⁵

In the bilingual book of Oleksiy Komar we can read more about Artamonov's view about the origin of the Huns and Ogurs arriving to Europe in the second half of the 5th century.¹⁶ In his 1962 work *The History of the Khazars*, M. I. Artamonov represented the view concerning the origin of the Hungarians that the Ugric tribes appeared on the steppe in the Hun period as the tribes called Ogurs in Greek sources (Onogurs, Saragurs, Kutrigurs, Utigurs), and were in fact identical to them.¹⁷ Artamonov assumed, in agreement with Gumilev, that the European Huns had their origins in the unity of the Uralic and Western Siberian Ugors and the Xiongnu, who had settled there from the east.¹⁸ V. S. Aksyonov, following Artamonov's line of thought on the origin of the Ogur tribes, considered the horse bones placed at the feet as a distinct ethnic marker of the 'Turkic-Ugor' Utigurs, i.e. Ogurs, in burials, an observation which he later supplemented by saying that the

graves with a bench formed at the head or foot is also a legacy of the Ogur peoples, stressing that the burial customs of the two peoples (i.e. the settling Xiongnu and the Uralic Ugors) developed over centuries of coexistence. V. A. Sarapulkin, following Aksyonov, also considered the placement of the skull and limbs at the feet of the dead to be a Turkic [Hun]-Ugrian characteristic, and therefore linked the appearance of this burial custom in the cemetery of Rzhevka to a group of Hungarians from the Volga region.¹⁹ Komar himself considers the burial custom of the 9th century Hungarians to be of Oguric origin.²⁰ Thus, one of the main representatives of the thesis of the identity between the Oguric and the Ugric peoples in Russian research was Artamonov in the second half of the 20th century, in the 1960s, whose opinion was accepted by many researchers until today. 'The existence (and even dominance!) of the 'Ugrian' population in the unity of the Huns, Bulgars and other nomadic peoples of Eastern Europe was accepted by many historians and archaeologists after M. I. Artamonov and was presented as indisputable information in subsequent works.'²¹

Komar states that Artamonov, talking about the Ugor origin of the Ogurs, didn't talk about the origin of the Hungarians, and states that 'this very decisive hypothesis was based simply on the assumption of D. Europaeus, according to which the 'Ogur' population is identical with the 'Ugor' ethnic name. The second argument, which also attracted more attention was the Russian Primary Chronicle [*Pověstī vremennīnyx lētū*], which mentions 'white Ugors,' who on the side of the Byzantine emperor Heraclius [610–641] fought against the Sasanid king [of kings] II. Khosrow.' As for the first statement of Komar, in the Hungarian summary of Artamonov's book we can read that the author connects the Russian name of the Hungarians, 'Vengri,' not with the name of the Onogurs, but with the name 'Ugor,' which name was known around the Lower-Volga and Ural region in the form of 'Ogur' and 'Ogor' as the common name of

¹³ TÜRK 2011, 32–33. Artamonov in regard of the language of the „Ugoric” people talks about a strong Turkic influence.

¹⁴ HAJDÚ 1964, 128–132; FODOR 1975, 87–171.

¹⁵ ERDÉLYI ET AL. 1965, 85–90.

¹⁶ KOMAR 2018, 56.

¹⁷ KOMAR 2018, 76–78; BARTHA 1964, 807–810; ERDÉLYI ET AL. 1965, 85–90.

¹⁸ See also ZASECKAJA–BOKOVENKO 1994, 701–724. See the map on p. 721.

¹⁹ KOMAR 2018, 66.

²⁰ KOMAR 2018, 89.

²¹ KOMAR 2018, 76.

related tribes.²² In both cases, even if we connect the name of the Hungarians to the Onogurs or to the Ogurs, we reach to Artamonov's hypotheses, according to which 'the Xiongnu from Asia settled in the region of the South-Ural and the lake Aral, where they mixed/united with the Ugors, based on the opinion of L. Gumiljov, among whom the Sarmatian material culture was spread. They [the Xiongnu] kept their Turkic language, moreover it spread among the Ugors (the opinion of B. Serebnikov).'²³

On the origin of the Huns, Sabirs, Onogurs and other Oguric tribes, Artamonov repeats the same view: The Onogurs are Turkicized Ugors, ethnically didn't differ much of the Huns. The Bulgars are of Ugoric origin, who joined to the Huns in Western Siberia.²⁴ The Khazars were the kin of the Bulgars, Ugors, about whose language the Muslim sources state that it is the same of the Bulgars.²⁵ If we compare Artamonov's thesis with what we know about the theory/theories of the Western Siberian homeland and origin of the Hungarians, we can see the direct relation.²⁶ Anyway, from what we read above it is clear that in Russian research the term Ugor is used to designate the Oguric tribes, and from this point of view the differences between the archeological steppe heritage of the Bulgars and the Ogurs is secondary, since they were variants of the same nomadic tradition and can be explained in a way that an ethnically and culturally related population lived in or under different tribal federations. As for the second statement of Komar, saying that Artamonov's opinion was based only on two written sources, we have to see the book itself and its citations to realise, even if we do not read in Russian, that Artamonov used much more materials to present his argumentation.²⁷ Also it would be inexplicable, how this theory could spread in Russian archeology and exist till today, if it wouldn't be grounded properly.

For this I have to refer to the article of Zaseckaja and Bokovenko again,²⁸ in which the authors to prove the settlement of the Northern–Xiongnu in the Ural region and their identity with the European Huns, mention not only the development and spread of the bronze cauldrons but other archeologic material as well.²⁹

THE (J)UGRIA-THEORY

To see the basic relation between the terms 'Finno-Ugric' and 'Ugric' in linguistics and 'Ugor' in Russian archeology we have to summarise shortly the research-history of the theory which links both the Ob-Ugric and Hungarian people to the territory of Jugria in Russian sources. In István Vásáry's article we can read that the Jugria-theory was born in Russian soil in the 15th century, according to which the Hungarians came out from Jugria, what was their ancient habitat.³⁰ Vásáry states that the reason of connecting the Hungarians to the territory of the Ob-Ugric peoples was that the Russian name of the Hungarians was originally 'Ugry' in plural and 'Ugorsky' as an adjective,³¹ which is very close to the Russian name of the Ob-Ugric people 'Yugry', 'Yugrici', from which name comes also the name of the territory where these people live: Jugria. Miklós Zsirai in his book in 1930 stated that the form 'Ugra' is the original and the form 'Jugra' developed in the Russian language with preiotaition. Also the last vowel –a is common in Russian names of territories.³² Vásáry says that based on the spread of the different forms in the sources we could see, that the original 'Ugry' was used to sign the Hungarians, while the same original 'Yugry' form was used to sign the people living around the Ural, and because of the similarity the Russians connected the two peoples, although between the two forms there is no etymological relation.

²² ERDÉLYI ET AL. 1965, 85–90. As we can see below, the original Russian name to designate the Hungarians was not 'Vengry'.

²³ ERDÉLYI ET AL. 1965, 85–90.

²⁴ About the origin of the Bulgars and their relation to the Huns and Ogurs, see KERÉNYI 2021, 295–306.

²⁵ They state that it is nor Turkic nor Persian (Iranian).

²⁶ KERÉNYI 2023, 5–20.

²⁷ ARTAMONOV 1962.

²⁸ ZASECKAJA–BOKOVENKO 1994, 701–724.

²⁹ See also MASEK 2017, 75–136.

³⁰ VÁSÁRY 2008, 73–87; VÁSÁRY 1982, 247–257.

³¹ The modern name of the Hungarians in Russian – from the 17th century – ('Vengry', 'Vengersky') comes from Polish.

³² ZSIRAI 1930, 100–122.

According to Vásáry in Hungarian research it was Zoltán Gombocz who suggested that the ancient homeland of the Hungarians could be in Western Siberia, which region was called Jugra, and in this region lived once the Onogurs with whom the Hungarians moved to Europe around 463.³³ Therefore it was stated that both the name of the Ob-Ugric Yugors and the name of the Hungarians 'Onogur', or in Russian, 'Ugor', goes back to the same name: Onogur or Ogur.³⁴ From the 18th century onwards in linguistic research the Russian name Ugor starts to designate the eastern part of the Finno-Ugric languages, the so called Ugric language unity. The similarity of the languages between the two peoples was noticed already in the middle ages, which similarity was proved to be a genetic relation by modern linguistic research.³⁵ This means that the Ob-Ugric peoples had a name 'Jugor', while the Hungarians had 'Ugor', they lived around the same area called Jugra and they spoke the same language. Vásáry accepts, that linguistically the etymological relation is correct, he himself tries to prove that it cannot be accepted on a historical basis.³⁶

Based on the theory mentioned above nor the Onogurs, nor the Hungarians lived in Western Siberia any more afterwards the 5th century and the name Jugria appears in Russian sources from the 10th century. How it would be possible, asks Vásáry, that the Russians could make a connection between the Hungarians and the Ob-Ugrians, if there is a fourhundred-years-long gap between the leaving of the former and the arrival of the latter to the same territory? The Volga Bulgars could meet the name Jugra from the 8th century, the Russians from the 10th. From whom the Bulgars and Russians could take this name, if the Onogurs and Hungarians already left from the region in the 5th century and the Ob-Ugrians didn't use this name as a self designation? Vásáry also refers to newer results

according to which the Onogurs never lived in Western Siberia; they moved to Europe from the direction of the southern area of the Khazak steppe, therefore it is uncertain that the Jugra name can be linked to them.³⁷

An other argument in Vásáry's article is that, if the Bulgars themselves were of Oguric origin, they should have recognized their old, but presumably not yet forgotten name; but for this we have no any information and in the muslim sources from the 10th century they distinguish the territories based on the names of the people: Bulgar, Yura, Maggari. 'We could see that the origination of the name Jugra from the ethnic name Onogur cannot be demonstrated nor linguistically, nor historically. We can say the same about an older explanation by Bernát Munkácsi which was based on the name Ogur/Ugur.'³⁸ Vásáry says, that the explanation of Zsirai doesn't take into account the Jura form in Muslim sources. The name comes from the Volga Bulgars and already has the preiotation. Therefore, the Jugra form is also original and cannot be connected to the Onogur or Ogur names. Although Zsirai in his book mentioned the solution of Munkácsi who could prove that the preiotation and the denasalization could happen in the language of the Bulgars as well.³⁹ Linguistically both the (J)ugra-Onogur, both the (J)ugra-Ogur solution can be accepted. In the followings Vásáry tries to prove that the name Jugra comes from the name of an Uigur tribe of the Kimeks who could settle on the west from the 840s and in the 10th century the Kimeks had a tribe called Yugur.⁴⁰

As for the historical arguments of Vásáry's article I would like to note the followings. If the Onogurs and Ogurs moved from Western Siberia in the middle of the 5th century and the Hungarians were part of this migration, it can be suggested rightly, that parts of the Hungarians stayed in the ancient home, as this kind of separation is a common feature in the wandering of nomadic people. We can see this in the

³³ In reality it was not Gombocz, who suggested this first, but Antal REGULY 1864, 325–349, and József THÚRY 1896, 677–692, 778–803, 880–917. See also MUNKÁCSI 1894, 160–180.

³⁴ MUNKÁCSI 1895, 349–387.

³⁵ ZIMONYI 2014, 34–43.

³⁶ VÁSÁRY 2008, 80–81.

³⁷ VÁSÁRY 2008, 81–82.

³⁸ VÁSÁRY 2008, 82.

³⁹ ZSIRAI 1930, 107–108.

⁴⁰ ZIMONYI 2014, 42; RÓNA-TAS 1996, 34–35; RÓNA-TAS 1999a, 1–17.

case of the later Hungarians in Magna Hungaria and in the case of the Pechenegs as well.⁴¹ Also I have to mention that in linguistic research it was represented as well, that the separation of the Ugric language unity didn't occur in the 5th century BC, but in the 5th century AD,⁴² which would mean, that the Ob-Ugric people are those Hungarians who stayed in the original Western Siberian homeland from the 5th century onwards, keeping their territories east of the Ural, maybe even reaching to the western side of it, and later moving northwards following the river Ob. Also, if some of the Russian archeologists are correct in defining the ethnic origin of the Ust-Poluy culture as ancient Ob-Ugric,⁴³ we can assume as well, that these Ugric people moved northward already from the 2nd century BC. In this case the separation between the later Hungarians and Ob-Ugrians happened around the same time, and later in the 5th century the Hungarians moved westward from Western Siberia.⁴⁴ These people could be called Ogurs/Ugurs by their neighbors as it was the name of that tribal federation to which they belonged when the separation occurred and this can be the reason why in Russian the name of the Hungarians originally derives from the name of the Ogurs. To say that the Onogurs and Ogurs didn't live in Western Siberia, is based only on a note of a source,⁴⁵ according to which the Onogurs once – before arriving to Europe – had a city called Bakath, which name, based on its ending (-kath) is of Sogdian origin, therefore shows to the southern area of Middle Asia.⁴⁶

I already dealt with this question in a former article,⁴⁷ saying '... if the Onogurs took control of the southern parts of the Kazakh steppe up to Transoxania after the Huns left, does not

mean that they could not live north of the Huns before, as it is confirmed by several sources. The fact that the Onogurs ruled a city with a name of Sogdian origin on the Kazakh steppe for a hundred years (apparently where they traded with the Iranians/Sogdians) does not mean that the homeland of the population, from where it extended its power to the Southern Kazakh steppe, was not originally east of the Urals.' Also I added that in the sources it is only the Onogurs who are named to had Bakath once, not all the Oguric tribes (Saragur, Ogur, Kutrigur etc.). Later in the same article I cited different authors to demonstrate that we can really count with the early (1.–2. centuries AD) settlement of eastern nomads in the Ural region and Western Siberia, which territory is held as the ancient homeland of the Ugric- and Hungarian-speaking people. Therefore, we can count with a population, linguistically and ethnically kin of the Hungarians, living east of the Urals from the 5th century till the 9th–10th centuries, who could have the Ogur designation, which explains the chronologic gap Vásáry indicated. If we add, that the relation between the name Jugor and Ugor was already explained linguistically reassuringly, then we can confirm, that the Russian names of the Ob-Ugrians (Jugra) and Hungarians (Ugor) are etimologically and historically related and can be derived from the one and same name 'Ogur', as Artamonov described it in his well know book as well.⁴⁸

THE USE OF THE TERM 'OGUR' IN HUNGARIAN ARCHEOLOGY

Very shortly we could say that in Hungarian archeological research concerning early Hungarian history/steppe history the term 'Ogur' is not in use. The reason for this, from one side, is based on the identification of the Bulgars and the Ogurs; in Hungarian steppe history Bulgar is held to be a common name for all the Oguric tribes/federations existing in the Eastern European steppe from the 5th to the 10th centuries.⁴⁹

⁴¹ About whose behindhand people among the Kumans writes the DAI.

⁴² ZSIRAI 1937, 150.

⁴³ RÓNA-TAS 1979, 46–54; CHERNETSOV–MOSZYNSKA 1974, 113–137.

⁴⁴ This means that historically the separation could occur between the 2nd century BC and 5th century AD, and there should be a very clear linguistic demonstration to say: it could have happened only between 1000 BC and 500 BC.

⁴⁵ VILÁGTÖRTÉNELEM 2012, 250.

⁴⁶ CZEGLÉDY 1976, 82–89.

⁴⁷ KERÉNYI 2023, 5–20.

⁴⁸ ERDÉLYI ET AL. 1965, 85–90.

⁴⁹ VÁSÁRY 1993, 72; RÓNA-TAS 1999b, 215; ZIMONYI 2005, 181–196.

Fodor only writes about the archeological relations between the (Volga) Bulgars and the Hungarians, but does not talk about the archeological heritage of the Ogurs and Onogurs.⁵⁰

It was Csanád Bálint who related the custom of the Hungarian partial horse burial to the Onogurs in an early article,⁵¹ but it is known how he changed his view concerning the possibility of research of the eastern elements in the Hungarian archeological material.⁵² Despite the publication of Artamonov's monograph in 1962, which was followed at least by two Hungarian reviews,⁵³ Fodor in 1975 did not count with the settlement of early Turkic (Xiongnu or Ogur) population in Western Siberia, nor with any early Hungarian-Turkic culture-effect, saying that it was a dogmatic view of the 'old' Hungarian research.⁵⁴ Although later, in his article of 1980 Fodor mentioned this possibility by referring to Russian researchers who represents this view. He admits that the possibility of an early Hungarian-Turkic contact in Western Siberia could be assumed on the basis of linguistic, historical and archeological evidences,⁵⁵ but in his conclusion he kept his former interpretation, saying that the Bulgar-Turkic people moved northward along the Volga from the middle of the 8th century and this period was the beginning of the Hungarian-Turkic contacts.⁵⁶

This chronology would be strengthened by the observation that the similarities between the Volga Bulgar and the Hungarian archeological material are the most developed/represented in the later cemeteries, which would mean that the coexistence between the two population did not begin earlier than the 8th century. Therefore, saying Fodor, the narrative of the Onogur-Hungarian wandering from Western-Siberia in the 5th century cannot be accepted. As I mentioned above, in Hungarian archeology the Russian term 'Ugor' – which comes from and means 'Ogur' – is not interpreted correctly, therefore it

can mean a kind of '(Finno)Ugric' population around the Ural or directly the ancestors of the Hungarians, but it is not linked to the Oguric tribes and people (to which it originally refers to).

In a former article I already pointed out that historically we should not identify the Bulgaric and Oguric tribes – even if they could have the same Western Siberian base-population –, since the tribal name Bulgar originally refers to the Huns who returned back north of the Black Sea after Attila's death and possibly united with the local Gothic population, at least with those who didn't move westward after the fall of the Hunnic empire.⁵⁷ Probably it was the original Hunnic federation to which the Kuturgurs/Kutrigurs and Utigurs belonged as well, as it can be read out from their myth of origin.⁵⁸ These Hun-Bulgars played an important role on the western side of the European steppe and on the Balkan Peninsula and cannot be confused with those Oguric tribes (Ogurs, Onogurs, Saragurs) which settled on the eastern part of the European steppe, east of the river Don in the 460s. These Ogurs and Onogurs still lived around the rivers Don, Kuban and Volga when the Avars and Gök-Türks arrived to Europe and later they became the vassals of the Gök-Türks until the middle of the 7th century.⁵⁹ After the rebels and the fall of the Western Gök-Türk empire two nomadic states emerged on the European steppe; Magna Bulgaria, a federation of Bulgars, Onogurs and Kuturgurs north of the Black sea and in the Kuban region founded by Kovrat, and Khazaria, south of the Volga, along the Caspian sea till the eastern region of the Caucasus, in the area of Daghestan. The Khazars can be identified with the Sabirs, who could have western Turk elements with them. From their west, on the northern foothills of the Caucasus mountain resided the Alans.

Oguric tribes lived also more on the north, following there the rivers crossed the steppe, especially the Don and the Volga.⁶⁰ Taking into account the descriptions of the written sources a

⁵⁰ FODOR 1977, 79–194;

⁵¹ BÁLINT 1971, 85–108.

⁵² BÁLINT 1996, 937–947.

⁵³ BARTHA, 1964, 807–810; ERDÉLYI ET AL. 1965, 85–90.

⁵⁴ FODOR 1975, 91, 103–113.

⁵⁵ FODOR 1980, 9–33.

⁵⁶ FODOR 1980, 9–33.

⁵⁷ KERÉNYI 2021, 295–306.

⁵⁸ KERÉNYI 2021, 295–306. cit. 37.

⁵⁹ MENANDER Frag. 10. 4. (ed. 1985. 125.)

⁶⁰ GULYÁS 2021, 64–74.

main settlement area of the Ogurs and Onogurs was the Middle and Lower Volga region, which connected the northern Volga and Kama territories with the Azov sea area, which could be the main route of the fur trade, of which the Onogurs were always famous.⁶¹ Both Symocatta and Menandros mention Ogurs living along the Volga. These Oguric tribes fell under Gök-Türkic rule for more than a half century and later possibly came under Khazar influence, as well as the southern Bulgar territories along the Black sea in the second half of the 7th century. From these Bulgars seceded Asparuch in the 670s and founded the Bulgarian Kingdom. At this time Bulgaric and Oguric people could live also in the Avar/Uarhun Khaganate. It were the Ogurs/Ogors living along the Volga to whose name Artamonov referred originating the Russian name of the Hungarians, 'Ugor', which name indicated the original habitat of these people in the Ural area and in Western Siberia called Jugria as well.⁶²

From an archeological aspect I would mention, that István Fodor dated and localized the development of the use of the burial masks among the people of the Kama and Ural region from the 6th to the 10th century, saying that the development of the custom is of (Finno-)Ugric origin.⁶³ Apart from the question, whether the custom is of local, or of steppe origin, as it is assumed by others,⁶⁴ it seems to be a fact, that from around the 6th century the Hungarians had a secondary contact with their northern Permian and Ob-Oguric neighbors. This can explain the secondary common features between the Permian and Hungarian languages from one side,⁶⁵ from the other with this observation we can outline the historical background of the origin of the common name of the Ob-Ogur and Hungarian people – Ogur – between the 6th and 9th centuries. From the Volga and Kama

region following the rivers through the Ural mountain the Ogur tribes of the steppe could reach the Ob-Ogur people on the other side of the mountain, which can explain the spread of the burial masks. Being historically related and being in contact around the Ural, it is reasonable to assume that they could bear a common name which became also the name of their wider territory as (J)ugria. This gives the answer to Vásáry's 'scepticism' concerning the historical background of the common name Ugor/Ogur to designate both the Ob-Oguric and Onoguric/Hungarian people.

⁶¹ GETICA ed. 2014. V. 37–38.

⁶² ERDÉLYI ET AL. 1965, 85–90.

⁶³ FODOR 1973, 159–176.

⁶⁴ BENKŐ 1988, 169–200; BENKŐ 1992, 106–108; BENKŐ 1989, 20–26; ERDÉLYI–BENKŐ 2005, 5–18.

⁶⁵ LIGETI 1986, 144–145. Although it can be suggested also, that if the Hungarians lived east of the Ural, then they could be in relation with the Permians living on the western side.

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A LATE MEDIEVAL BATTLE KNIFE DISCOVERED IN MUREȘ COUNTY

ÁLDOR CSABA BALÁZS

Our study presents a medieval battle knife discovered near Grușor, Mureș county (Fig. 1), a type of weapon which was widespread in Central Europe towards the end of the Middle Ages (15th–16th centuries). Earlier studies considered this type of knife as „rare” in Transylvania,^{} but lately the number of these artifacts which entered museum collections has increased considerably, although most of them were found by metal detectorists. Even if their place of discovery is known, the archaeological context is missing, hence they are usually neglected by researchers. The weapon recently found at Grușor might be associated with the szekler insurrection from 1562.*

Keywords: Battle knife, Bauernwehr, weapons, Transylvania, metal-detecting

Cuvinte-cheie: Cuțit de luptă, cuțit țărănesc, arme, Transilvania, detectarea metalelor

INTRODUCTION

A popular all-purpose knife for work, hunting or fighting, the *Bauernwehr* (referred as *tesák* in Czech and Slovak literature,¹ *hussite knives*² in Hungarian, *tasak* or *kord* in Polish,³ sometimes *Hauswehr* in German⁴) was a common sight in Germany, Switzerland, Bohemia and other Central European lands from the early 14th till the middle of the 16th centuries, but spread even eastwards. They are large knives with a wide hilt to which wooden or horn handles were riveted. Most of them had guard nails for hand protection and reached considerable lengths – 80cm is not uncommon. The side-mounted *nagel* on these peasant knives shows that their purpose was also for fighting and served as the people's weapon in the late Middle Ages. The first *Bauernwehr* must be even earlier as the 14th century, as during excavations in the castle from Veseli

nad Moravou (Czech Republic) a combat knife was discovered in a late 13th century context.⁵ In Buda (Hungary) a document mentions a knife maker in 1322⁶ while in Regensburg there are already 8 knife makers known in 1339–1346.⁷

The number of imported knives mentioned in Transylvanian documents suggests a high demand, which led also to the development of a local industry, with craftsmen in several cities and a local knife makers guild (*cultelificum fraternitas*) which dates back to 1376.⁸ The documents mention a Petrus Cultellifaber in 1413 in Bistrița.⁹ In Sibiu, the chaplain Anton Cultelifaber surely came from a family of knife makers.¹⁰ Johannes Cultellificis de Castro Schegs (Sighișoara) was matriculated as student of Wien University in 1420.¹¹ One can assume

^{*} MARTA–GHEMIȘ 2011, 113.

¹ ŽÁKOVSKÝ 2011, 136–145.

² KALMÁR 1971, 117–118.

³ GRABARCZYK–ŁAWRYNOWICZ 2013, 51–61.

⁴ WEGELI 1929, 19–25.

⁵ ŽÁKOVSKÝ 2014, 99.

⁶ HOLL 1994, 161.

⁷ HEIMPEL 1926, 131.

⁸ PASCU 1954, 67.

⁹ MÜLLER 1864, 37; GÜNDISCH 1976, 182.

¹⁰ RUSU 2008, 83.

¹¹ SCHRAUF 1892, 50.



Fig. 1. 1. The place of discovery mapped on the first Austrian military survey (1763–1785); 2. The place of discovery on Google Earth aerial view map.

that he was a knife maker's son from Sighișoara. The knife makers guild is mentioned in the city already in 1376, but in the 15th century we don't have information about their activity. Also, from Sighișoara, Georgius Cultilex was delegate in the saxons assembly in 1422 and later in 1474 in the Wien University we have again a knife maker, or a knife maker's son from the same city, Stephanus Cultifaber.¹² In Cluj Napoca the Hungarian citizens records (*Regestrum Hungarorum de Civitate Cluswar*) mention a *Keesgyartho* (knife

maker) in 1453.¹³ There were knife makers not only in the cities, but also in some villages, as we have information about a knife maker, Petrus, from Țigmandru (Mureș county),¹⁴ and a Hans *Messersmid* from Slimnic (Sibiu county).¹⁵

We must point out also the fact that the knife makers guild held all the craftsmen who were involved in the knife manufacturing process: the *Klingenschmied* who made the blades, the *Schröter* who made the handles, the *Schleifer* – the blade sharpeners, and the *Messerschmied* who



Fig. 2. Fresco from Ghelinta (Covasna County) depicting Saint Ladislaus with a long knife. Dated around the year 1330. (photo source: szentlaszlo.com)

¹² NUSSBÄCHER 1969, 227–228.

¹³ KOVÁCS 2018, 199.

¹⁴ PASCU 1954, 238.

¹⁵ RUSU 2008, 83.



1.

2.

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4.

Fig. 3. Representations of late medieval long knife owners. 1. *Speculum humanae salvationis*, cca. 1309–1324. 2. *Astrologisch-astronomische Sammlung*; Ms. germ. Fol. 244. Mittelrhein. Cca. 1445–1455. 3. *Book of Hours*, Utrecht, cca. 1410–1420, 4. *Tacuinum sanitatis*, Renania, cca. 1400–1425.

assembled the components and delivered the finished product to the merchants. The sheath, an accessory, was produced by the *Messerscheiden-roller*.¹⁶ So far no workshop specialized in the production of battle knives were found in Romania, but the discoveries of hilts in the course of processing in a couple of fortifications might indicate local production or maintenance works.¹⁷

Beside the local production we can observe very high numbers of knives imported. In Braşov the commerce registries mention for 1503 a total of 2.402.650 knives exported to Wallachia.¹⁸ Most of these must have been imports from Europe, re-exported. In that year a total of 381.000 knives were imported to Braşov only from Styria.¹⁹ The fact that such quantities had to be imported suggests a high demand which could not be fulfilled by the local guild, or a need for higher quality products. The terms used in contemporary customs registries and documents for the swords, spades, knives are in Latin (*gladium*, *bicellum*, *cultellum*) and slavic (меч, корд, ножевех) and doesn't differentiate the knives by their function.²⁰ European documents use the term *Messer*, but it is debatable when mean knives or spades.²¹ A campaign

order from may 1447, Weimar, mentions what will happen if comrade soldiers draw *Messer* (knife/spade) or *Schwert* (sword) against each other. In the same year, after Prince Wilhelm III's failed siege on Soest, the listings of the lost equipment by his 12.000-strong army of Bohemian mercenaries mentions 103 *Schwerter* and 48 *Messer*. The occasionally mentioned *šavle* in the same source was interpreted as *tesák*,²² while an isolated *kord* also can be seen in the same lists.²³ The *šavle* – *szabel* is mentioned along with the *Messer* in the German language report²⁴ of the killing of Ulrich II, Count of Celje, by the men of Ioannes Hunyadi in 1456.²⁵

sol man im die band abhawen. Schiebt einer den andern tod, so sal man im den koph abehouwen." (FRA XLII, 36. Nr. 22.)

²² TRESP 2004, 380.

²³ WAGNER ET AL. 1957, 46.

²⁴ „Man hatte dort ausgeschlossen alle Teutsch oder Pehamer der mit im trug ein wer, swert, messer oder spiess; zu Ulrich kommen dann die knechte mit swertern, szabeln, wauffen zu ym in sein gemah, er begunt ein swert emboren; der Bedrohte, welcher tragt ein joppen, die was gemacht für schüss, und sah, wie auf in die. Ungern mit ihren grossen Sabin trungen, zog aus sein messer und schlueg. Hunadt zukt sein Messer von der Scheidt; Cili greift ritterlich zu seiner wehr und schlug aug fen Hunadt einen geschwinden schlag. Hunadt fangt ihn auf wird aber in das Haupt gewundt und einen daumen und schlug ihm das Gehülz ab an dem messer und ain gulden Ring am daumen, drauf sprangen die Knechte aus der Klammer mit Schwertern und mit Tartschen, schluegen ihn todt.“

²⁵ PICHLER 1880, 61.

¹⁶ HOLL 1994, 159.

¹⁷ OŢA-SAMSON 2016, 192–193.

¹⁸ MANOLESCU 1957, 163.

¹⁹ MANOLESCU 1957, 160–161.

²⁰ PURDEA 2018, 177.

²¹ “Czuckt aber darüber imands swert ader messer, dem sal man die band durchstechen ; wundt er den andern, so

THE KNIFE

The battle knife (Fig. 4) was discovered at south from Gruişor,²⁶ on a forested hilltop (Fig.1). It belongs to the A4 type from the Czech scientist Petr Žákovský's classification,²⁷ its total

T-shaped guard nail (*Nagel*, variant of Žákovský type t_{12a}).³⁰ The corroded area most likely also had other holes for rivets. The guarding nail (Fig.5), with 40mm total length, is not perpendicular to the blade-tang plane, but is slightly bent towards the hand. Its head length is 24mm

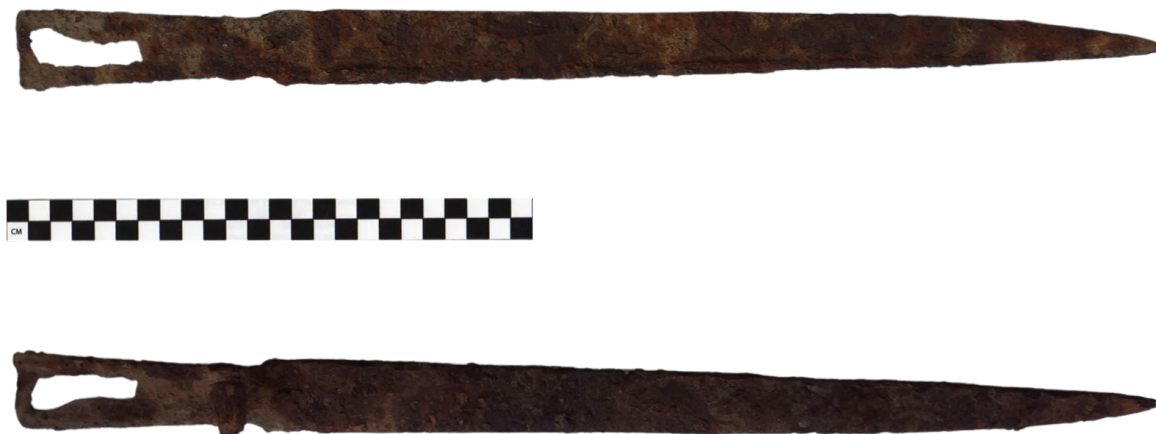


Fig. 4. The late medieval battle knife discovered at Gruişor, Mureş county.

length is 547mm, with a 116mm tang. Weight: 455gr. The 431mm blade has a straight dull part, while the edged part curves and narrows to a sharp point (type Žákovský B₁).²⁸ The tang has a rectangular section (type Žákovský d^{29}) and

with 10mm thickness and rectangular section, while the neck thickness is 9mm. The blade has **d** type section, from the Žákovský classification,³¹ while its thickness on the dull side is 9mm near the tang and narrows to about



Fig. 5. Detail of the knife's guard nail (no scale).

a shape that expands slightly at the edges, with 36mm width and 6mm thickness. The tang's surface has a concavity, which was opened by heavy corrosion. Only one rivet hole is still visible.

At the base of the tang there is a thick,

5–6mm towards the tip. Along almost the entire length of the back of the blade is a narrow fuller. There are several chips on the blade at about its two-third, which suggest the knife was used and most likely it was a weapon, especially taking into consideration the size of the blade.

²⁶ The knife was found by means of metal detecting and now is in the Mureş County Museum collection.

²⁷ ŽÁKOVSKÝ 2014, 212–213.

²⁸ ŽÁKOVSKÝ 2014, 223, fig. 207.

²⁹ ŽÁKOVSKÝ 2014, 260, fig. 212.

³⁰ ŽÁKOVSKÝ 2014, 449, fig. 384, 386.

³¹ ŽÁKOVSKÝ 2014, 253, fig. 205.

CHRONOLOGY

While this type of combat knife (Žákovský type A4) is very common all-over Central Europe, they have been found also in Bulgaria, mostly in the northeastern part of the country,³² where it is assumed they appeared with the Crusader Army of the Hungarian-Polish king Vladislav III Jagello, during his 1443–1444 campaigns against the Ottomans.³³

The T-shaped guard nail was dated in literature from the 15th century up to the early 16th century in Bohemia and Moravia.³⁴ From East Europe, Ukraine, we have a very early example from middle of the second half of the 14th century, dated by its context.³⁵ This *kord* found in the hillfort from Zelena Lypa village has the T-shaped guard nail parallel to the blade (Fig. 6).

The numismatic material found with the knife is from the decades 8 and 9 of the 14th century which made it chronologically earlier as its Western European analogies known to the authors of the study, hence they suspected that a similar type of weapon was formed in Eastern European lands and later penetrated towards west.³⁶ In the light of the above mentioned knife discovered in the castle from Veseli nad Mora-

vou, from a late 13th century context, we believe that such a theory can be scrapped. At the site from Zelena Lypa beside the material which shows the presence of a professional army, also imported dishes were found which indicate the presence of traders. Therefore, we

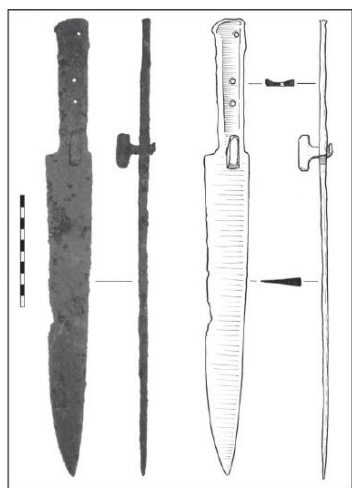


Fig. 6. The knife from Zelena Lypa, Ukraine (apud Pyvovarov 2012, Fig. 1).

believe there is a good possibility that the *kord* is also an import. A further evidence of east-west trade ties could be also the *kord* found among grave goods in the 15th – 16th century burial ground in the village of Kovashi (Lomonosov District, Leningrad Region, northwestern European Russia).³⁷

A good analogy we have from Păcureni (Glodeni commune, Mureș County) where a similar knife, with identical guard nail, was found in 2024 by a metal detectorist³⁸ (Fig.7). We must mention also a knife found near Oradea,³⁹ and one from the Mediaș City Museum collection.⁴⁰ For the knife found near Oradea a 13th – 14th century horizon was proposed by the authors of the study based on a possible analogy with two knives discovered at Dăbâca.⁴¹ We do not share their opinion, while the knives from Dăbâca are clearly a different type (much smaller blade with totally different handle) and we believe that the knife from Oradea is at least a century later.

At the medieval site from Șibot, spot Cânepiște (Alba County), during preventive archaeological researches several knives were found⁴² in complexes dated to the 15th century. All are badly preserved, but some seem to show good similarities to the knife from Grușor. At Șibot the knives were clearly used in combat, as they were found among the numerous remains of the battle of Câmpia Pâinii from 1479, which has led to the destruction of the medieval settlement. In the MNIR collection there are at least two more battle knives which are clearly the same, A4 type, one from Potigrafu (Prahova County) and one from Fălchiu (Vaslui county), but unfortunately both with unknown context of discovery.⁴³

Finds from Ukraine, near the Carpathian Mountain ridge Kostrych⁴⁴ (Verkhnovynskyi district, Ivano-Frankivsk region) show how

³² POPOV 2018, 27–28.

³³ POPOV 2018, 28.

³⁴ ŽÁKOVSKÝ 2014, 449.

³⁵ PYVOVAROV 2012, Fig. 1.

³⁶ PYVOVAROV 2012, 32.

³⁷ SHMELEV–GORODILOV 2023, Pl. 3.

³⁸ Unpublished, the knife is in the Mureș County Museum collection.

³⁹ MARTA–GHEMIȘ 2011, Pl. I. 2.

⁴⁰ PURDEA 2018, Pl. I/3, II/3.

⁴¹ IAMBOR 2005, pl. LIV.

⁴² OȚA–SAMSON 2016, Pl.10–11.

⁴³ OȚA–SAMSON 2016, 194.

⁴⁴ SYCHEVSKYJ ET AL. 2017, fig. 3.



Fig. 7. The battle knife discovered at west from Păcureni, Mureș County. Photo made by the authors of the discovery.

widespread this type of combat knife was in the late Middle Ages. It has penetrated even much further north, as we can see from the finds from Vilnius castle, Lithuania.⁴⁵ Regarding the knives with T-shaped guard nail, Central European specimens from the Berlin Museum were placed by researchers at late 15th – early 16th centuries.⁴⁶ Analogies from Olomouc,⁴⁷ Dukovany,⁴⁸ made Ukrainian researchers to suspect a Moravian origin for the knives found at mountain ridge Kostrych and Zelena Lypa.⁴⁹ While all published knives with T-shaped guard nail from Moravia (Bludov,⁵⁰ Dukovany,⁵¹ Olomouc,⁵² Bradlo,⁵³ Němčic⁵⁴) were chance finds (Fig. 8), the Czech researcher points out that dating this variant of protective guard is difficult, and also places these around 15th – early 16th centuries.⁵⁵ Both knives found in Mureș county have this type of guard nail, but their size is much bigger (54 cm) as each of the above-mentioned specimens (all have less than 40cm total length).

Some researchers noticed a very close resemblance between the European *Bauernwehr* and the late medieval – modern Persian *kārd* (*kard* is the equivalent in the Persian language for knife from

which the Hungarian word for sword – *kard* – descends, the same way as the Polish *kord*),⁵⁶ without drawing any conclusions. It was mostly a stabbing weapon and often the point would be reinforced to penetrate chain mail. The *kard* had straight, single-edged blades, no guard and they were worn on the left side of the belt in a sheath.

We must take into consideration the possibility this knife could be connected to the 1562 uprising. The Borsos Sebestyén chronicle⁵⁷ from 1562 mentions that the szeklers gathered in camp near Acățari in the meadows. The forces from this camp were to secure the Mureș County. From this base camp a 2000-strong force went on raids up on the Mureș valley, attacked and ransacked Reghin, Gurghiu and Gornești. They

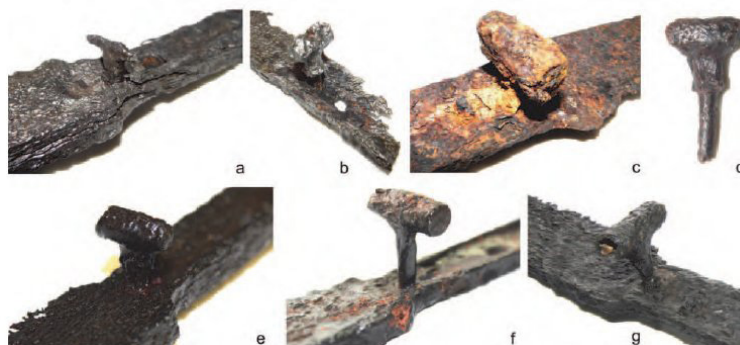


Fig. 8. Knives from Moravia with t_{12a} type guard nail (apud Zakovsky 2014, fig. 384), a – Dukovany, b – Bludov, c – unknown location, d – Olomouc.

⁴⁵ BUGYS 2012, 6.

⁴⁶ MÜLLER–KÖLLING 1981, nr. 186–189.

⁴⁷ ŽÁKOVSKÝ 2014, cat. nr. 183.

⁴⁸ ŽÁKOVSKÝ 2014, cat. nr. 44.

⁴⁹ SYCHEVSKYI 2017, 131.

⁵⁰ ŽÁKOVSKÝ 2014, Fig. 384b.

⁵¹ ŽÁKOVSKÝ 2014, Fig. 384e.

⁵² ŽÁKOVSKÝ 2014, Fig. 384f.

⁵³ ŽÁKOVSKÝ 2014, Fig. 384g.

⁵⁴ KNÁPEK 2013, fig. 1.B.

⁵⁵ ŽÁKOVSKÝ 2014, 449.

were returning from a raid in Corunca and were heading towards Văleni with the intention to move further south to the main szekler camp at Hoghilag, when they were met by the army of János Zsigmond. In the battle which followed, near Grușor, by the Niraj River, many

⁵⁶ KOVÁCS 2010, note 32; KHORASANI 2006, 230–236.

⁵⁷ MIKÓ 1855, 18.



Fig. 9. 15th century Persian *kard*. Photo: Salar Jung Museum, Hyderabad.

szeklers were killed, many taken captive, some ran away.⁵⁸

The equipment of the szekler army was on the agenda of the January 2, 1535, national assembly from Târgu Mures, where the fighters were divided in six categories, by their status or wealth. The only known source for this are the records of Somogyi Ambrus (Ambrosius Simigianus, notary from Belső-Szolnok County), who wrote it down in his notes about the June 24, 1536, national assembly. In the 19th century Seiwert Gustav authenticated Somogyi's notes in the Saxon archives from Braşov, and while the last to mention it is Rugonfalvi Kiss István,⁵⁹ a further check of these notes would be necessary. One can notice that swords are only for the top rank (primors), and the knives are mentioned as weapons only for the "poor".⁶⁰

- Primors (*primorok*): Horse, helmet, armor, spear, shield, sword.

- Primpili, equites (*lófők*): Horse, helmet, spear, shield, pickaxe or mace or bow and arrows.

- Pixidarii (*közsékelyek*): Horse, helmet, spear, shield, pickaxe or mace or bow and arrows (the same as above).

- Szeklers who own no land, but have six oxes: armor, spear, helmet, pickaxe or bow and arrows.

- The poor: Helmet, dagger/knife or scythe.

- Threshers (*cséplésből élők*): spear, shield.

In the 15th century there was a ruling for bohemian infantrymen who were serving in German princes' armies which mention that they must have sword and long knife: "*Ain jeder dannoch an seiner guts langs messer oder schwert*"⁶¹. The city of Pressburg in the middle of the 15th century mentions the *messer* in the equipment of a mercenary they've employed from Sopron.⁶² The widespread use of these battle knives among Bohemian, polish, Austrian soldiers, which became very popular during the Hussite war, is well illustrated in Dürer's *Fechtbuch* from 1512. A further proof for the knives popularity is the fact that polish knife makers from Kraków in 1503 were complaining that

⁵⁸ MIKÓ 1855, 19.

⁵⁹ RUGONFALVI KISS 1939, 226.

⁶⁰ EDER 1800, 140.

⁶¹ TRESP 2004, 391.

⁶² NÓGRÁDY 2008, 196–200.

long knives and sabres are widely used, while swords are unpopular.⁶³

CONCLUSIONS

The *Bauernwehr* was very popular among the lower social classes and owe their widespread distribution beside their low price⁶⁴ also to certain laws that prohibited some ranks of persons from wearing knightly swords in public. The long knives intended for self-defence were attached to the belt usually on the left side and were one of the elements of civilians' costume. The knife sheaths which came from clear context, were all found in fortresses,⁶⁵ which is another proof that they mainly served as a weapon. The fact that they had a sheath, a belt attachment system is an even more clear indication towards their use as a weapon. We also have some which were found among the remains of a battle.⁶⁶

The fact, that we have several analogies from Central Europe, Bohemia,⁶⁷ East Europe,

Silesia,⁶⁸ South-East Europe, Bulgaria,⁶⁹ and even Ukraine,⁷⁰ suggests that the knife is probably an import. The fact that the highest number of analogies with similar guard nail are from Moravia doesn't necessarily point towards a Moravian origin for the two knives found in Mureş county, but could be connected to current state of the research. Most of them are dated to the 15th century, but as they are often found with no context, such attributions should be taken with a grain of salt. For a group of knives found in the Mediaş area the researcher believes they are from the 15th–16th centuries.⁷¹ The knife from Gruişor also can't be later as the second half of the 16th century.

This large combat knife was a multifunctional type of weapon. It was used in close hand-to-hand combat, but also could have been used in hunting to finish off wounded game and skin it. Such big knives were also useful tool in the household for chopping, cutting, removing bark from the trees, and so on. But its main functional purpose was clearly combat.

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⁶³ NADOLSKI 1974, 28.

⁶⁴ PURDEA 2018, 178.

⁶⁵ RUSU 2008, 94; GYÖRFI 2015, 128.

⁶⁶ OŢA–SAMSON 2016, 195.

⁶⁷ ŽÁKOVSKÝ 2014, 10, 30, 38, 127.

⁶⁸ MAREK 2006, Fig 1a.

⁶⁹ PARUSHEV 2008, Fig. 2b.

⁷⁰ PROKOPENKO–SYCHEVSKYJ 2018, Fig 1.

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CONFLICT AND VIOLENCE IN THE MIDDLE AGES – REVISIONIST PERSPECTIVES ON HISTORIOGRAPHY IN THE LAST DECADE

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All interpersonal interactions are shaped by emotions that influence individual behavior. Frequently, interactions between different communities lead to conflict situations, often involving varying degrees of violence. This dynamic is evident in the case of the Saxons in Transylvania. Hannah Arendt is among those who link conflict and violence, recognizing its instrumental aspect. In the realm of sociology, other scholars engage in a debate centered around two theories: the civilization theory and the theory of the long-term decline of violence. These theories highlight different aspects of ethnic groups interacting in society. Researchers provide diverse perspectives, often without reaching a common consensus. My intervention aims to identify a point of intersection between classic theories on the topic, historical case studies, and specific realities. The focus is on medieval Transylvania, an area rarely studied from this point of view, but characterized by its unique positioning and pluralistic society, which introduces multiple contradictions with the potential for conflict.

Keywords: historiography, medieval studies, violence, sociology, multidisciplinary

Cuvinte-cheie: istoriografie, medievistică, violență, sociologie, multidisciplinaritate

Our prevailing perception of the Middle Ages often depicts it as a tumultuous, perilous, and excessively brutal era, a portrayal largely influenced by various forms of media, including movies, theater, art, games, music, reenactments, and merchandise. We have a tendency to associate ourselves in a fantasy way with legendary heroes from myths, battle songs, folklore, and other aspects of medievalism to fulfil our imaginative desires. However, when examining this vision in the context of the Transylvanian Saxons, a more nuanced perspective emerges.

The question arises: how applicable is this vision of the Middle Ages when examining the Transylvanian Saxons as a subject of study? My study commences with an empirical observation focused on the society established by the Transylvanian Saxons between the 12th and 16th

centuries. Contrary to prevailing assumptions, this society reveals a pattern of intense interpersonal and intercommunity conflict, many of which were resolved without recourse to violence. The instances of violent actions by the Transylvanian Germans were predominantly directed towards contexts situated outside their ethno-cultural and legal habitat, functioning as an extreme and atypical element of their societal behaviour. Their privileged status is well known, as are the fiscal and military obligations they had. I will mention a few examples of conflict situations in which they engaged.¹ In 1277, during attempts to curb the autonomous

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¹ *Privilegiul lui Carol Robert pentru orașul Cluj* [Fond Primăria Municipiului Cluj-Napoca], Series A – Privilegii și acte, Subseries A 1 -Privilegiile orașului, Nr. 150, DJAN Cluj, (http://cautare.arhivamedievala.ro/MedievaliaDetails/faces/index?docid=CJ-F-00001-A-150-3&_afWindowMode=0&_afLoop=10295171708873424&_adf.ctrl-state=ahkjybb4q_13), accessed on 7 September, 2022.

organisation of the Saxons, the Bishop of Alba Iulia resorted to an act of violence and ordered the killing of the Saxon count Alard of Ocna Sibiu. In response, Alard's son, Gyan, set fire to, among other churches, the episcopal one.² In another episode, they rebelled against Charles Robert of Anjou and the voivode of Transylvania in the context of defending Saxon autonomy in 1324, through a representative of the violent expression of the Saxons named Henning from Petrești. Although the Saxons lost the battle, they received a reaffirmation of their privileges.³ From the examples presented, it is easy to observe the intercommunity conflict interaction directed towards another ethnic group. However, most historical works treat conflicts for their mere eventful value. Studies in other fields do not hesitate to make relevant contributions to the notions of conflict and violence, but without reaching a common point. Some scholars explore historical context, others examine the causes of violent circumstances, but few focus on how aggressiveness was enacted, relating a historical context and mentioning significant details, such as the materiality that led to a bloody outcome (weapons used, medical technology). Others outline psycho-sociological profiles of the aggressors. This reveals a segmented approach of the phenomenon, addressing distinct origins, developments, consequences, and implications of conflict and violence. In the following sections, I will present several perspectives, extracting key theoretical concepts for a better understanding of the issues discussed.

PSYCHO-SOCIOLOGICAL PERSPECTIVES ON VIOLENCE. HANNAH ARENDT'S VISION FROM HER WELL- KNOWN WORK "ON VIOLENCE"

A significant political and social perspective is brought forth by Hannah Arendt in her work "On Violence", published in 1970.⁴ Strongly influenced by the historical realities of her time,

Arendt introduces the concept of conflict, in relation to which violence has a purely instrumental character. Furthermore, she defines the link between violence and power, stating that when this relationship is tight, violence is merely an instrument through which political power is imposed. Arendt's historical discourse challenges violence as a means of exercising power, arguing that the state needs power but not violence.⁵ However, power is necessary to fulfil the fundamental psycho-sociological need for leadership and collective organisation. Therefore, aggression is the last solution in interpersonal or state conflict interactions,⁶ about which Arendt notes that "Violence can be justifiable, but it never will be legitimate".⁷

Arendt's formulated thesis can be especially exploited in studying the intentions and effectiveness of violent acts in society; however, it does not offer a comprehensive explanatory framework of the phenomenon, ignoring a series of factors and potential contexts associated with violent behaviour. Additionally, Arendt's essay, highly valuable from the standpoint of sociology and anthropology, suffers from historical immobility: the proposed model is universally valid, with its source represented by abstract considerations about human nature.⁸

Arendt's theory about the relationship between violence and political power was later taken up in Marxist historiography, speaking about the deliberate use of violence as a mechanism for social discipline and the preservation of the elite's superior status. An example of this is found in the study titled "Making sense of violence? Reflections on the history of interpersonal violence in Europe", authored by Richard Mc Mahon, Joachim Eibach, and Randolph Roth, where violence is presented as a means of regulating social behaviour in the direction of discouraging actions capable of disrupting economic and political balances by the elite.⁹ The gradual ritualization of violence, which begins to unfold in a well-regulated framework, is,

⁵ ARENDT 1970, 51.

⁶ ARENDT 1970, 46–47.

⁷ ARENDT 1970, 52.

⁸ ARENDT 1970, 59–63.

⁹ MC MAHON ET AL. 2013, 5.

² PAPACOSTEA 1993, 154.

³ SĂLĂGEAN 2016, 37, 236.

⁴ ARENDT 1970.

according to these authors, aimed at depriving the lower marginal strata of society of this instrument, which becomes a monopoly of the elite.¹⁰ The beginning of this process of institutionalization and strict regulation of violence is placed in the late Middle Ages and the dawn of modernity, when impulsive behaviors begin to be considered increasingly undesirable.¹¹ Some of the studies found in the journal "Crime, History & Societies" mention the instrumentalization of violence without emphasizing it.

THE SOCIO-HISTORICAL IMPULSES FROM THE JOURNAL "CRIME, HISTORY & SOCIETIES"

"Crime, History & Societies" is a specialized journal that made its appearance in 1997. The periodical aimed to debate historical contexts related to penal systems, justice, criminality, and accepted definitions of social order and the legitimacy of power structures, as well as the exercise of legal acts of violence. As mentioned above, the authors published in the journal do not embrace the sociological and philosophical reflections of Hannah Arendt. However, they highlight other theories and concepts, lacking an intersection of various forms of understanding of conflict and violence.

Therefore, sociological theories related to the civilization of humanity and the theory of the *long-term decline of violence* come into the equation, often seeming to be interconnected. The theories were brought by the sociologist Norbert Elias through his work "The Civilizing Process", published in 1939.¹² In his research, Elias notes the absolutist state's monopoly on violence expressed through ritualized forms, which creates innovative control mechanics through different levels of shame, resulting in impulses on human behaviour, self-control, societal civilization, and the decrease of violence.¹³

However, the theory of the increasing rarity of recourse to violence as history progresses

(the *long-term-decline-of-violence*) has not enjoyed unanimous acceptance in the literature dedicated to the subject.¹⁴ In the comprehensive article "Early Modern Violence and the Honour Code: From Social Integration to Social Distinction?", Gerd Schwerhoff openly challenges this thesis, highlighting the multitude of particular contexts and forms of violence, which can even be verbal (insults, offenses),¹⁵ advocating for an analysis of the phenomenon in the context of conflict.¹⁶ Schwerhoff observes that violence has not only represented an instrument for resolving conflicts in history but has often constituted a premise for triggering them. For Schwerhoff, the demarcation between conflict and violence is sometimes difficult to define, and the causality relationship between these two concepts can be bidirectional, depending on the context.¹⁷

Therefore, the dynamics of aggression shift, disputes tend to escalate rapidly into acts of violence, and personal harm can further intensify an already tense situation. This framework, contextualizing the conflict becomes essential. The nuances of this context fluctuate between institutionalized and non-state violence, the latter having two types: social and fatal. Within the realm of aggression, emotions play a role, ranging from the most refined to the most primal, including love and hatred. Maurice Cottier and Silvio Raciti undertook endeavors in this direction in their study titled "From Honour to Subjectivity: Interpersonal violence in Basel 1750–1868 and Berne 1861–1944", focusing on the inhabitants of Basel and Berne over an extended period of two centuries. They brought to light other possible motivations underlying acts of violence. Cottier and Raciti observe that strong emotional factors (such as love and hatred) can be identified at the root of some situations where violence manifests, with rationality playing an insignificant role in their consumption.¹⁸ The distinction proposed by the two authors between *social violence* and *fatal violence*

¹⁰ MC MAHON ET AL. 2013, 11–13.

¹¹ MC MAHON ET AL. 2013, 15–21.

¹² ELIAS 1939.

¹³ CLASSEN 2004, 7.

¹⁴ SCHWERHOFF 2013, 28–30.

¹⁵ SCHWERHOFF 2013, 31–33.

¹⁶ SCHWERHOFF 2013, 34–35.

¹⁷ SCHWERHOFF 2013, 35–38.

¹⁸ COTTIER–RACITI 2013, 114.

is based on this observation.¹⁹ The second category encompasses cases of passionate violence overlooked by Arendt. Among these, the most representatives are directed towards friends, relatives, or neighbours and sometimes follow a pattern that excludes any rational explanation: after killing the victim, the perpetrator commits suicide. Threats directed at the future victim and confessions made to a third party also fall under the same paradigm of irrationality – actions that are not only futile but even detrimental to the aggressor.²⁰ Acts of social violence that do not result in the death of the victim also fall under the sign of motivational arbitrariness. Examples provided by Cottier and Raciti in this regard are illustrative: aggressive clashes between unfamiliar men willing to provoke each other (verbally or gesturally) and engage in fights – without any other stakes than the futile demonstration of their physical superiority – are recurring events in the cities of Basel and Berne over the last two and a half centuries.²¹ Medievalist Albrecht Classen also uses emotions as starting points in analyzing violence. Although love is a sentiment associated with pleasure and beauty, it can escalate into jealousy, possessiveness, aggression, or even sexual abuse. Hatred tempts individuals to actions they would not normally commit.²² Emotions form the foundation of an individual's social life and require understanding in the cause-and-effect relationship between them and aggression—observing the causes and consequences of documentarily attested violence and exploring the emotions associated with these acts to understand the nature of resulting criminality.²³

HONOUR AS A PREMISE OF AGGRESSIVE BEHAVIOUR

Within the broader sociological discourse, the concept of honour also emerges as a driving factor behind violent behaviour carried out

between individuals, an emotion that permeates social layers for the personal satisfaction of the ego. Studies identify a “game of honour” that includes the provocation and acceptance of participation in duels – battles taking place both through the use of specific weapons of the periods and hand-to-hand combat. Starting from Pierre Bourdieu's observation about the important role of honour in the interpersonal relationships of the medieval and modern world, a series of sociologists and historians have explored the potential of honour in triggering violent conflicts.²⁴

Adhering to Bourdieu's thesis, Maurice Cottier and Silvio Raciti propose an analysis of the ritualistic nature of honour, strictly regulated by medieval and pre-modern social codes, describing the mechanisms by which this value – indispensable in the communal life of the time – manages to trigger violence. The violent acts based on the concept of honour are, in turn, strictly codified in society of that time, and their consummation generally follows predetermined patterns. This procedural way of thinking about violence and honour finds its counterpart, according to the mentioned historians, in play and ritual and can be found in all layers of medieval society.²⁵

A particular case of violence associated with honour is the duel, a practice widespread in Europe from the dawn of modernity to the early decades of the 20th century.²⁶ Explored by John Jeremiah Cronin in the article “Honour, Duelling and Royal Power in Exile: a case-study of the banished Caroline Stuart Court (1649–1660)”, this type of violence is based on the concept of personal or familial honour and manages to assert itself especially in the higher circles of society. Cronin identifies the origin of this practice in the warlike activities of modern officers and traces how the duel is assimilated into the behaviour of princely and royal families of the 17th century.²⁷ Worth noting is his observation regarding the nature of such a phenomenon, which does not necessarily imply the

¹⁹ COTTIER–RACITI 2013, 102.

²⁰ COTTIER–RACITI 2013, 114–115.

²¹ COTTIER–RACITI 2013, 107–108.

²² CLASSEN 2004, 1.

²³ CLASSEN 2004, 12.

²⁴ COTTIER–RACITI 2013, 106.

²⁵ COTTIER–RACITI 2013, 106–108.

²⁶ CRONIN 2013, 48.

²⁷ CRONIN 2013, 55–56.

physical elimination of the opponent, but rather the injury to his dignity/honour. Triggered by rather abstract factors, the duel generally causes effects in the same register, physical injuries or even killings being considered accidental in this context.²⁸

A typology of conflicts triggered by the sense of honour is proposed by Gerd Schwerhoff, who notes that such violent manifestations occur in societies that value physical conflict as a means of maintaining social stability and perpetuating power relations. The historian highlights that violence not only emerges in relations between representatives of different social categories but also often regulates relationships within the same group. Depending on the social belonging of the actors involved in a violent act and the deep motivations behind their actions (the loss of honour serving as a pretext for all to engage in violent acts),²⁹ the German historian delineates three types of honour-associated violence: (1) honour/ dishonour – in these cases, the purpose of violence is to compensate for the feeling of personal honour violation through actions, gestures, and words; participants in this type of violence are usually individuals or small groups; (2) respectability/ disrepute/ dishonourability – this type occurs when actors involved in a conflict come from different social categories and (3) honour priority/ precedence – this type of conflict arises in power struggles or prestige conflicts within elite social strata.³⁰

HISTORICAL PERSPECTIVES: TAXONOMIES OF VIOLENCE. HISTORICAL-SOCIOLOGICAL PERSPECTIVES

From a different perspective, the last century appears more violent, contrary to the theories of the decline of violence, less brutal for the sympathizers of these theories, and in the eyes of the authors who do not embrace any direction, the forms of violence merely evolve, revealing

nuances that render abuse increasingly imperceptible to the untrained observer. The transformation from provocation, insults, fist fights, duels, executions, police attacks, wars, to more immoral events of mass killing, genocide, intentional starvation, has taken place in the last 150 years. This theory is modestly supported by the historian Pieter Spierenburg.

However, Spierenburg does not speak about an absolute decline of violence, but introduces – in the study “Toward a Global History of Homicide and Organized Murder”, published in 2014 – a simple taxonomy of the concept, based on the involvement of the state in these acts of violence. According to his theory, the last century and a half is characterized primarily by state violence, organised, while acts of “classic” non-state violence (whose motive is primarily honour) are increasingly rare. Types of organised violence include both phenomena considered desirable in a legal logic, such as executions, brutal police reactions, and wars,³¹ as well as a series of acts impossible to justify morally – which, in the classification system he proposes – fall into the category of crimes: genocide, extermination of populations, intentionally induced famine, poisoning of wells, etc.³² All these types of organised violence, considered to be the prerogative of the state, have become increasingly frequent in the last 150 years, indirectly proportional to the frequency of non-state violence.³³

Between opposition and partial acceptance of the theory of the decline of violence is Albrecht Classen. In the introduction to the volume “Violence in Courtly Medieval Literature”, he notes that for him, there is a thin and easily broken wall between civilization and barbarism.³⁴ He considers more significant the studies of sociologists that demonstrate that the breakdown of the family and close community, industrialization, globalization, and the new capitalist structures have nuanced violence to make it less visible. He sympathizes with the ideas brought by Hannah Arendt regarding the relationship between power and brutality – the instrumental

²⁸ CRONIN 2013, 54.

²⁹ SCHWERHOFF 2013, 31–33.

³⁰ A scheme of the dimensions of honour to be found in SCHWERHOFF 2013, 34.

³¹ SPIERENBURG 2014, 18/2, 100–101.

³² SPIERENBURG 2014, 18/2, 107, also 112–113.

³³ SPIERENBURG 2014, 18/2, 102, also 106.

³⁴ CLASSEN 2004, 20.

role of violence in aggressively imposing power. For Classen, however, brutality has both a constructive and destructive character – in other words, when violence is used for negative purposes (killings, crimes, abuses) and positive purposes (saving from killings, crimes, abuses, etc). When two parties (individuals, communities, institutions) related abusively accept the cessation of aggression, they pave the way for ending the conflict through other methods.³⁵

ECCLESIASTICAL INTERVENTION IN CONFLICTS

Since the beginning of the Middle Ages, Christianity has imposed itself in conflict based on the model of *cuius regio eius religio*. Joshua M. Cragle in “Converting the Saxons. A Study of Violence and Religion in Early Medieval Germany”³⁶ conducts a detailed analysis of this process. Cragle mentions the scapegoat theory regarding the persecution of Christians,³⁷ developed by anthropologist René Girard. This theory involves identifying an issue within the community, designating a scapegoat, and restoring social order by eliminating the scapegoat (through killing, destruction, or exile).³⁸ In Cragle’s context, the pagans were the scapegoats, and their elimination through conversion or other violent methods was deemed necessary in the politico-religious context of the period. Gradually, the status of Christianity shifted from a persecuted religion to one that punished the practice of other cultures or beliefs. Examples include the destruction of pagan temples, altars, offenses against non-Christians, torture of heretics, and ultimately their killing. In the process of Christianization, missionaries risked their lives (some even lost them) by preaching, performing miracles, disproving the existence of pagan gods, destroying temples, and constructing churches in place of those temples. However, pagans responded to these attacks. For instance, fearing forced conversion, the Saxons brutally

killed two missionaries from their community and threw them into the Rhine. The consequence of their actions resulted in the death of the killers and the burning of their villages. The massacre of the community that had aggressed against the missionaries was initially an exceptional event, but their lack of protection, injury, and/or killing led to the militarization of missionary activities.³⁹

Christianity not only had a spiritual dimension but also a social shaping of morality and civilization for laypeople. This goal was legally enforced once it entered into conflict with pagan resistance and later militarily.⁴⁰ The close connection between the royal secular institution and the spiritual institution ensured centralized power and collective unity⁴¹ – legally, being a Frank meant renouncing pagan rites, and the conflict between Christians and heretics took on a structural form.⁴²

However, for the harmonious functioning of society, education is essential. Part of the education process, both in private individuals’ lives and in interactions with pagans, involved verbal offenses. These stemmed from the church’s discouragement of believers from behaving like barbarians, direct insults, causing verbal discomfort to pagans, and refusals of alliances by Christianized kings.⁴³ Historian Albrecht Classen details the influence in individuals’ private lives, capturing the encouragement of domestic violence to shape female behaviour according to the husband’s will in a 15th-century sermon by Cherubino de Siena. The friar notes:

“When you see your wife commit an offence, do not rush at her with insults and violent blows: rather, first correct the wrong lovingly

³⁵ CLASSEN 2004, 5–7.

³⁶ CRAGLE 2023.

³⁷ CRAGLE 2023, 124.

³⁸ CRAGLE 2023, 274–275.

³⁹ CRAGLE 2023, 134–135, see also 143 for further details on the event surrounding the death of Boniface.

⁴⁰ CRAGLE 2023, 126–127, the social customs could not be curbed by the Church, disrupting the indoctrination of the populace, and Theudoric I was forced to pacify an enraged crowd of pagans. This is just one example among many others discussed.

⁴¹ CRAGLE 2023, 125, several kings acknowledged the advantages of conversion.

⁴² CRAGLE 2023, 129.

⁴³ CRAGLE 2023, 140, in the case of Boniface. See also page 146 regarding the rejection of alliances and the offense caused to pagan kings.

and pleasantly, and sweetly teach her not to do it again... But if your wife is of a servile disposition and has a crude and shifty spirit so that pleasant words have no effect, scold her sharply, bully and terrify her. And if this still does not work, take up a stick and beat her soundly, for it is better to punish the body and correct the soul than to damage the soul and spare the body.”⁴⁴

Therefore, the clergy’s intervention in the form of educating the laity, Christianizing peoples, and disseminating evangelical teachings took on a contradictory and brutal form, contradicting Christian doctrines. It endorsed the correction of human behaviour through aggressive methods and even the organisation of Crusades.⁴⁵

The application of Girardian theories within his study excels in Kline’s work. In “Patriarchy, Violence and Sacrifice in the Middle English Slaughter of the Innocents Plays”,⁴⁶ he analyses variations of the biblical scene *Slaughter of the Innocents* found in medieval English sources. These sources differ based on cultural, social contexts, contemporary historical realities of the authors, as well as gender, racial, religious, and age differences. The author identifies the patriarchal conflict in the texts as the causality of the tragedy’s social tension.⁴⁷ Similar to Hannah Arendt, Kline relates political power to violence when Herod orders the killing of the children – a patriarchal dimension associated with the monarch’s power to control the right to life and decide on death.⁴⁸ Brutality assumes an instrumental role in the establishment of social order. The soldiers’ barbarism is captured through the act of killing itself, including potential sexual abuses against women.⁴⁹ The soldiers’ actions of submission to Herod’s command are argued by the Girardian theory to stem from mimetic desire. Mimetic desire takes on a conflictual connotation when a scapegoat emerges in the community and becomes mimetic rivalry. The ultimate goal of rivalry must be the elimination

of the problem, even through aggressive methods.⁵⁰ In this case, it meant the death of the innocent – they being considered without sin, and the episode is seen as a futile sacrifice. The theology now emphasizes ideas against sacrifice, leaving only trauma in its aftermath.

CONCLUSION

This overview of theoretical perspectives on violence, primarily grounded in historical sociology, aims to outline a conceptual framework that provides multiple methodological tools contributing to the study of violence in the Saxon environments of the 12th to 16th centuries. Violence, ultimately, emanates from interpersonal engagements, notwithstanding the extent to which we may consider Darwinian theories pertaining to an inherently aggressive human nature. Medieval society, while predominantly influenced by conflict and violence across various domains, did not invariably resort to aggressive resolutions; rather, its participants frequently reached mutual agreements through non-brutal means. Additionally, it serves the purpose of understanding the notions of conflict and violence, facilitating the verification of their applicability in the significant intercommunity actions and behaviours reflected in sources related to the Saxons. At times contradictory, the theories put forth by authors who have delved into the issue of violence have been formulated either (1) based on general considerations about human nature or social mechanisms, or (2) following reflections grounded in the observation of modern realities. The research I have undertaken aims to test these theories in a local medieval context and integrate them into a coherent perspective on violence in the Saxon space. Simultaneously, it seeks to explore perspectives that have been infrequently addressed by the mentioned authors. In my perspective, the various theories are applicable within the diverse contexts presented by the sources, and instances of violence should be analyzed accordingly. Personally, I

⁴⁴ CLASSEN 2004, 17–18.

⁴⁵ CLASSEN 2004, 14.

⁴⁶ KLINE 2022, 267–308.

⁴⁷ KLINE 2022, 268–269.

⁴⁸ KLINE 2022, 273.

⁴⁹ KLINE 2022, 289–290.

⁵⁰ KLINE 2022, 273–275.

do not align myself with the proponents of the long-term decline of violence theory. While acknowledging that individuals over the centuries have progressively abandoned more violent behaviours, I attribute this phenomenon to factors such as control, self-regulation, and shifts in social interpersonal interactions—elements now deemed socially acceptable behaviour. From my

standpoint, violence constitutes a tool of social interaction that demands thorough understanding; its potency and repercussions must be recognized—a notion akin to the theory articulated by Hannah Arendt. Like any other tool, it can be employed constructively or destructively, with the significance of societal actions conferring meaning upon its application.

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ABBREVIATIONS

<i>ActaAntHung</i>	Acta Antiqua Academiae Scientiarum Hungaricae, Budapest
<i>ActaArchHung</i>	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest
<i>ActaMilMed</i>	Acta Militaria Mediaevalia
<i>ActaMN</i>	Acta Musei Napocensis, Cluj-Napoca
<i>ActaMP</i>	Acta Musei Porolissensis, Zalău
<i>ActaPraehistA</i>	Acta Praehistorica et Archaeologica
<i>AnB</i>	Analele Banatului
<i>Angustia</i>	Angustia. Muzeul Carpaților Răsăriteni, Sfântu Gheorghe
<i>Antiquity</i>	Antiquity. A Quarterly Review of Archaeology
<i>Apulum</i>	Apulum. Acta Musei Apulensis, Alba Iulia
<i>ArchÉrt</i>	Archaeologiai Értesítő, Budapest
<i>ArchKorr</i>	Archäologisches Korrespondenzblatt, Römisch-Germanischen Zentralmuseum Mainz
<i>ArhMold</i>	Arheologia Moldovei
<i>Banatica</i>	Banatica, Muzeul Banatului Montan, Reșița
<i>BAR (I.S./B.S.)</i>	British Archaeological Reports, International Series / British Series, Oxford
<i>BayVgBl</i>	Bayerische Vorgeschichtsblätter
<i>BerRGK</i>	Bericht der Römisch-Germanischen Kommission
<i>BHAUT</i>	Bibliotheca Historica et Archaeologica Universitatis Timisiensis
<i>BMA</i>	Bibliotheca Musei Apulensis
<i>BMusBrux</i>	Bulletin des Musées Royaux d'Art et d'Histoire, Bruxelles
<i>CA</i>	Cercetări Arheologice
<i>CommArchHung</i>	Communicationes Archaeologicae Hungariae, Budapest
<i>Complutum</i>	Complutum. Publicaciones del Departamento de prehistoria de la Universidad complutense de Madrid
<i>Crisia</i>	Crisia. Muzeul Țării Crișurilor, Oradea
<i>Dacia (N. S.)</i>	Dacia. Recherches et découvertes archéologiques en Roumanie, I–XII (1924–1948), București; Nouvelle série (N. S.): Dacia. Revue d'archéologie et d'histoire ancienne, București
<i>DissArch</i>	Dissertationes Archaeologicae ex Instituto Archaeologico Universitatis de Rolando Eötvös Nominatae, Budapest
<i>EphemNap</i>	Ephemeris Napocensis, Cluj-Napoca
<i>EurAnt</i>	Eurasia Antiqua
<i>FI</i>	File de Istorie. Muzeul de Istorie al Județului Bistrița-Năsăud, Bistrița
<i>FolArch</i>	Folia Archaeologica, Budapest
<i>Germania</i>	Germania. Anzeiger der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts
<i>HOMÉ</i>	A Herman Ottó Múzeum Évkönyve, Miskolc
<i>JAHA</i>	Journal of Ancient History and Archaeology
<i>JAMÉ</i>	A Nyíregyházi Jós András Múzeum Évkönyve, Nyíregyháza
<i>JASc</i>	Journal of Archaeological Science
<i>JbRGZM</i>	Jahrbuch des Römisch-Germanischen Zentralmuseums, Mainz
<i>JRA</i>	Journal of Roman Archaeology

<i>JRomMilSt</i>	Journal of Roman Military Equipment Studies
<i>JRS</i>	The Journal of Roman Studies
<i>KuBA</i>	Kölner und Bonner Archaeologica
<i>Marisia</i>	Marisia (V–), Studii și Materiale, Târgu Mureș
<i>Marisia-AHP</i>	Marisia: Archaeologia, Historia, Patrimonium, Târgu Mureș
<i>MCA</i>	Materiale și Cercetări Arheologice, București
<i>MFME</i>	A Móra Ferenc Múzeum Évkönyve, Szeged
<i>Oltenia</i>	Oltenia. Studii și comunicări. Istorie-Arheologie
<i>OxfJA</i>	Oxford Journal of Archaeology
<i>PBF</i>	Prähistorische Bronzefunde, Stuttgart
<i>ProcPrehistSoc</i>	Proceedings of the Prehistoric Society
<i>PZ</i>	Praehistorische Zeitschrift
<i>RA</i>	Revue archéologique
<i>RadMV</i>	Rad vojvođanskih muzeja (1994- Rad Muzeja Vojvodine)
<i>ReiCretActa</i>	Rei Cretariae Romanae Fautorum Acta, Tongeren
<i>RevBis</i>	Revista Bistriței, Complexul Județean Muzeal Bistrița-Năsăud
<i>SaalbJb</i>	Saalburg-Jahrbuch. Bericht des Saalburg-Museums
<i>Sargetia (S.N.)</i>	Sargetia. Acta Musei Devensis, Deva
<i>SCIV(A)</i>	Studii și Cercetări de Istorie Veche (și Arheologie 1974–), București
<i>SlovArch</i>	Slovenská Archeológia, Bratislava
<i>SMIM</i>	Studii și Materiale de Istorie Medie
<i>StComBrukenthal</i>	Studii și comunicări – Muzeul Brukenthal
<i>SUBB-Historia</i>	Studia Universitatis Babeș-Bolyai, series Historia, Cluj-Napoca
<i>Századok</i>	Századok, A Magyar Történelmi Társulat Folyóíráta, Budapest
<i>Tibiscum</i>	Tibiscum. Studii și comunicări. Muzeul Județean Caransebeș
<i>Tisicum</i>	A Jász-Nagykun-Szolnok Megyei Múzeumok Évkönyve
<i>Tyragetia</i>	Tyragetia. The National Museum of History of Moldova, Chișinău
<i>UPA</i>	Universitätsforschungen zur Prähistorischen Archäologie, Bonn
<i>Ziridava</i>	Ziridava (–2012 Studia Archaeologica)
<i>ZMúz</i>	Zalai Múzeum. Közlemények Zala Megye Múzeumaiból
<i>ZPE</i>	Zeitschrift für Papyrologie und Epigraphik

MARISIA. ARCHAEOLOGIA, HISTORIA, PATRIMONIUM

With a publishing tradition since 1965, in 2019 the annual of the Mureș County Museum initiated a new series entitled: *Marisia. Archaeologia, Historia, Patrimonium*. The publication provides a panel for new research results in archeology, architecture and material heritage of the history of arts and culture. The studies mainly focus on the inner Transylvanian region that encompasses also Mureș County. Beyond local valuable contributions, the annual aims at a regional and global concern that is relevant for the whole of Transylvania. Among the annual's missions is to provide mutual interpretation of the research results produced by the Romanian and Hungarian scientific workshops. Therefore, the annual articles are mainly in English but based on the field of research and the approached topic studies in German, Romanian or Hungarian are also accepted.

Cu o tradiție din anul 1965, anuarul Muzeului Județean Mureș s-a relansat în 2019 sub titlul *Marisia. Archaeologia, Historia, Patrimonium*. Această publicație se descrie ca o platformă științifică care cuprinde rezultatele cercetărilor în domenii precum: arheologia, arhitectura și patrimoniul material din zona istoriei artelor și a culturii, studii localizate în regiunea centrală a Transilvaniei, din care face parte județul Mureș. **In extenso**, anuarul își propune să ofere un spațiu unitar contribuțiilor științifice valoroase, relevante din perspectiva geografică a ceea ce înseamnă întreaga regiune a Transilvaniei. Una dintre misiunile publicației este aceea de a oferi tuturor celor interesați spațiul de schimb pentru cele mai noi rezultate din atelierele științifice românești și maghiare. Articolele anuarului sunt scrise în general în limba engleză, existând totodată articole scrise în germană, română și maghiară, în funcție de specificul domeniului și a temei abordate.

A Maros Megyei Múzeum 1965 óta megjelenő évkönyvének 2019-ben útjára bocsátott új sorozata, a *Marisia. Archaeologia, Historia, Patrimonium* elsősorban a mai Maros megyét is magába foglaló belső-erdélyi régió régészeti, épített és tárgyi örökségére, nemkülönben az ezekhez kapcsolódó művészettörténeti, művelődéstörténeti kérdésekre vonatkozó újabb kutatások tudományos fóruma. A lokális perspektíván túl igyekszik kitekinteni a regionális és univerzális összefüggésekre, így a tágan értelmezett Erdély területére nézve is közöl kiemelkedő értékkel bíró tanulmányokat. Küldetésének tekinti a hazai román és magyar tudományos műhelyekben született eredmények kölcsönös tolmácsolását. A dolgozatok nyelve főként az angol, de szakterülettől és témától függően német, román vagy magyar nyelven is közöl írásokat.

